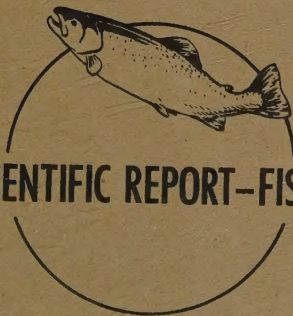
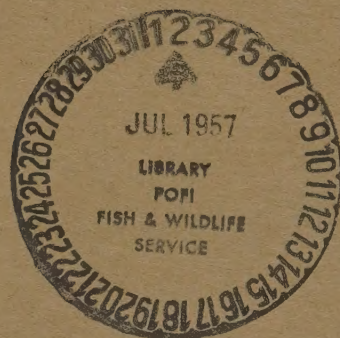


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HISTORY OF GREAT FISHERY OF NEWFOUNDLAND



SPECIAL SCIENTIFIC REPORT-FISHERIES No. 213

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EXPLANATORY NOTE

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United States Department of the Interior, Fred A. Seaton, Secretary
U. S. Fish and Wildlife Service

HISTORY OF THE GREAT FISHERY OF NEWFOUNDLAND

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Chapter 1. The Origins

In the summer of the year 1001, a flotilla of Viking ships, those magnificent craft with the high-lifted prow which were the pride of their masters, the Norsemen, left behind the high lands of Greenland, the distant country of the northern seas where Erik the Red and his companions from Iceland had landed in 982. After the death of the father, the three sons of the brave Erik: Lief, Thornwald and Thorstein, had struck out after his example for the discovery of new lands.

Setting a course to the southwest, they had come first to a rocky land where fox abounded. This was Labrador which they called Helluland, land of rocks.

Continuing their navigation to the south, they attained two days later a shore with sandy soil covered with pines and birches where they saw many animals. They had discovered the west coast of Newfoundland which they named Markland, the country of forests.

Following always the coast, which they traced to the west, they landed in a region with rich vegetation where maize and wild vines grew in abundance and the fresh water swarmed with salmon. This country, which they called Vinland, the land of the vine, was actually the coast of Massachusetts. They probably landed on Cape Cod, or, perhaps, at the place where later arose the city of Boston.

Up to the end of the 12th century, the Vikings maintained colonies in the regions which are today Labrador, Nova Scotia and Massachusetts.

After the abandonment of these territories, without doubt as a result of combats with the natives, they maintained themselves during two more centuries in Greenland. The last bishop of Gardar, the Benedictine Mathias, was elected in 1492, the same year in which Christopher Columbus made his discoveries in the west. Then at the end of the 16th century, this colony, which had been flourishing, disappeared in a catastrophe that some attribute to an abrupt cooling of the harsh climate of Greenland, others to an exterminating raid by the Eskimos, a thesis which agrees with the fact that the Eskimos became dominant at the beginning of the cold.

The discoveries of the Vikings in Newfoundland and on the American continent fell into oblivion. It was in recent times that the study of their sagas establishes this knowledge.

The Basques claim the honor of the discovery of Newfoundland, which was in reality only a rediscovery. According to tradition their sailors and, in particular, those of Cape Breton near Bayonne, had come to these parts about the beginning of the 14th century in the course of their whaling expeditions, the whales having deserted the Bay of Biscay, about 200 years before the memorable discovery of America by Christopher Columbus.

De Lamare, in his Traite de Police and, after him, R. J. Valin in his Commentaires sur l'Ordonnance de la Marine en 1681, write that credit for the beginning of cod fishing in Newfoundland belongs to the French, principally to the Basques of Cape Breton who discovered, a hundred years before Columbus, North America. They do not give any proof, however.

Ducere, in his Dictionnaire de Bayonne, under the article "whales", claims that it was about 1372 that the Basques, pursuing whales toward Newfoundland, penetrated to the mouth of the St. Lawrence. Here again one finds neither proof nor reference.

The thesis, too easily accepted, of schools of whales withdrawing in good order before the Basques who pursued them from one coast of the Atlantic to the other, is, however, a little too fantastic to be taken seriously.

It is much more probable that the first great whaling expeditions of the Basques were directed toward the north and with the destination of Iceland, which was known a long time, and where they had learned that whales were to be found.

Thus Crozier relates in his Histoire du port de Bayonne: "according to Icelandic history, in 1412, twenty Basque boats and harpooners equipped for the whale fishery arrived at Groenderfioerd and in the Gulf of Grunder, which caused a great surprise on the isle."

In reality, the presence of the Basques in Newfoundland is formally attested for the first time in 1528. Their coming to these parts before this date is perhaps only suppositional.

On the other hand, it is affirmed that the Bretons and Normans fished in Newfoundland waters in the first decade of the 16th century. A number of authentic documents, of which the oldest refers to four Rouenn boats bound for this destination in 1508, attest to the importance that their outfitting had acquired at this epoch. But nothing confirms the tradition according to which they had come to this region in the 15th century.

The historical priority of navigation in the waters of Newfoundland goes to John and Sebastian Cabot, yet nothing permits one to affirm that in the course of their two voyages to northern regions they had landed on this great island, nor even that they had seen any part of it. But they certainly sailed in its near neighborhood.

On return from his voyage in these regions in 1497, John Cabot relates that "the sea there is full of fish to such a point that one takes them not only by means of a net but also with baskets to which one attaches a stone to sink them in the water." His English companions added that it was possible to capture them in such great numbers that "henceforth the kingdom will no longer have need of Iceland, whence comes such great quantity of the fish called 'stock-fish'".

The Portuguese, Corte-Real, who certainly landed at Newfoundland in 1501, and thus was the historical discoverer, confirms the tales of Cabot on the prodigious quantities of cod that one found in these waters. Also the Portuguese sailors were the first to come there to fish, as is attested by an ordinance of King Emmanuel, of October 14, 1506, concerning the collection of an annual tax on the fish carried from Newfoundland.

One is led to consider as very probable that the origin of the fishery in Newfoundland, as much by the Bretons, Normans, and Basques, as by the Portuguese, is to be found in the stories of Cabot and Corte-Real, of which the rumors had not failed to spread rapidly among the cod fishermen of these diverse countries who were to be found each year in Icelandic waters. During this epoch, the Bretons and Normans had fished half a century around Iceland, and the Basques had come there for a long time with their whaling vessels. It is not, then, surprising that at the announcement of the discovery of new fishing grounds where cod abounded, they had immediately gone there in great numbers.

Outfitting vessels for the Grand Banks rapidly took on great importance. August 3, 1527, the Englishman John Rest found, in the Bay of St. John alone, eleven Normand boats. During the months of January and February of 1543 and 1544, about two boats per day left for Newfoundland from Rouen, Havre, Dieppe, and from Honfleur. At the time of his second voyage, Jacques Cartier, observing the Isle of St. Pierre, found there "many boats from both France and Brittany." Thirty years later, in 1548, 150 French boats were outfitted for the Newfoundland fishery, with an effective strength one can estimate at 2,500 men. At about the same time the Portuguese sailors had developed this industry to such an extent that one counted, in the little port

of Aveiro alone, more than 150 boats equipped for the Newfoundland cod fishery.

From this epoch, exploitation of the new fishing grounds acquired considerable economic importance.

Chapter II. The Island of Newfoundland, the Banks and the Cod

The island of Newfoundland, roughly triangular in shape, covers an area of 110,670 square kilometers. Geologically, it is part of the Canadian Shield extending from Labrador from which it is separated only by the shallow Strait of Belle Isle. Glacial erosion has resulted in an extremely broken coastline, especially to the north and southeast, as exemplified by the Avalon peninsula which breaks off at the end of an isthmus 30 kilometers long, 5 kilometers in width at its widest part. By reason of such broken contour, the length of the coastline attains a figure, enormous for the area, of 9,000 kilometers.

The interior, of which the greatest part was unexplored until the 19th century, has a plateau from 100 to 200 meters in height, cut by slight parallel ravines and isolated hills, the "tolls". The spongy soil is sprinkled with lakes, marshes, and peat bogs, which occupy a third of the area of the island, and which are surrounded by forests of pine, fir, and cedar, alternating with barren heaths. In certain places, especially along the coasts, the pines attain enormous dimensions, as much as one and one-half meters in diameter.

At the time of discovery, the island was peopled by harmless natives (described by the French by the generic term "savages" by which they designated the Indians of America) who were not the typical redskin. These were the famous "Beothucks" with pale faces, of unknown origin, and who colored their skin with iron oxide to protect themselves against the insects. They lived on the shores, dwelling in wooden shelters covered with the skins of fish and feeding themselves by their hunting and fishing. Surrounded by the new occupants, they took refuge in the interior of the island where they were lost from sight. The last of them had disappeared at the end of the 19th century.

Animals were very numerous in Newfoundland. One found there the caribou, the wolf and the fox. The sable and the otter were equally very common.

Fish are extremely abundant about the shores of the island. Aside from the cod, the herring is found in abundance, as well as a number of other species. Among the crustaceans, the lobster abounds there. The fresh water streams are frequented with enormous quantities of salmon. Whales come in fairly large numbers to the vicinity of Newfoundland. Here also are equally frequent, in massive annual migrations, two species of seal: the Greenland seal and the hooded seal, of which the hunting has been, especially during the 18th and 19th centuries, the object of a very important local industry.



From the southeast to the southwest of Newfoundland, at a certain distance from shore, extend the Banks, a continental shelf of considerable area, almost equal to that of France, which represents the remains of an ancient sunken continent, on which are accumulated glacial deposits resulting from the melting of icebergs carried from Greenland by the Labrador current.

To the east, one finds first, at 45 degrees of longitude, the Flemish Cap, which a deep channel separates from the Grand Bank. The latter, the largest bank of all, extends through four degrees of latitude and six degrees of longitude. The chain of banks, separated by more or less deep depressions, continues from Green Bank, St. Pierre Bank, Banquereau to the banks to the west which extend to the island of Nantucket.

The depths of the banks vary between 50 and 100 meters. Their relief is not uniformly regular. They present certain irregularities, such as the Whale Deep, up to the shallow bottom of Virgin Rocks. At the edge of the great bank is the region of Platier where the depth does not exceed 40-50 meters, during many centuries the area most exploited by the fishery.

The climate of the banks, as well as that of Newfoundland, is less extreme than that of regions situated to the west. It sometimes happens that the approaches to the island are blocked by ice floes part of the winter. The strait of Belle Isle is closed each year by ice until May. In summer the temperature is never high. From spring to autumn, the region of the banks becomes a realm of fogs which are produced by condensation resulting from the meeting of the cold Labrador current with the Gulf Stream which comes in contact with it.

The cod (*Gadus morrhua*) is the largest fish of the family Gadidae to which belong many fish of great commercial value such as the hake, the pollock, and the whiting. In its general form it is characterized by three dorsal fins, two anal, short pelvic fins and by a barbule that hangs from its lower jaw. Its coloration, subject to adaptation to the bottom by mimicism, is far from uniform. The back is more or less marbled on a background varying from green to red passing through grey, yellow and brown; the stomach and the lateral line are white.

Some cod attain an impressive size and weight. Some have been taken of lengths from 1.8 to 2 meters with weight of 100 kilograms. However, those which measure 1.5 meters with a weight of 40 kilograms are already very rare and usually a fish of 10 kilograms is a very beautiful cod. In the scale of market weights, a cod of 3 kilograms green-salted, representing a live weight of about 4 kilograms, is classed as a big fish.

Like the herring, the cod is a cold-water fish. Extensively abundant in northern Atlantic waters, in which it inhabits certain regions in compact masses, one hardly ever finds it south of the latitude of Brittany. It is unknown in the Mediterranean.

Like most species of fish, biological necessities of reproduction result each year in important migrations of adult cod.

Spawning takes place toward the end of winter, generally from January to March, at times varying slightly according to the vicinity where it is effected, at the end of a vast migration in orderly compact concentrations directed toward waters less cold than those it normally frequents. In normal years, cod find optimum conditions for reproduction on banks of Newfoundland at depths preferably from 50-100 meters. After spawning they stay there during the spring and early summer because of the abundant food they find; then the inverse migration takes place, this time in dispersed order, toward depths from 100-250 meters and in colder water. The season of fishing is when the cod are found thus schooled on the banks.

There exist, in the North Atlantic, other zones of spawning, the principal ones being the Gulf of the St. Lawrence, the Icelandic Shelf, the continental plateau bordering Norway, the vicinity of Spitzbergen, Bear Island, the Barentz Sea, and the banks of the west coast of Greenland. The cod gather at various times in more or less great quantities, depending on whether they find hydrographic conditions more or less favorable and food more or less abundant. It can happen thus that in certain years they do not appear on certain bottoms where one usually finds them. For the old fishermen of Newfoundland and Iceland, who did not possess real scientific knowledge which would permit them, in such case, to find them elsewhere, it was a bad year for the fishery.

The recent researches of the Danish biologist Johann Schmidt have put to light the existence of four principle races of cod, characterized by different vertebral counts.

On the Newfoundland Banks, one finds everywhere the arctic race of cod, which is that which possesses the largest individuals and in smaller proportion, the American race of cod, much more numerous on the east coast of Nova Scotia, as well as in the Gulf of St. Lawrence.

On the banks, water temperatures from 2° to 4° C. are most propitious for great schools. The fish become less common as the temperature rises and they disappear entirely when it attains 8°.

Of an insatiable voracity, the cod swallows all sorts of fish, including its own young, mollusks with their shells, and crustacea with their carapaces.

In the region of Newfoundland, it feeds chiefly, depending on the season, on herring, capelin, lancets, and squid. The squid, which is its preferred prey, is a cephalopod whose average size rarely exceeds 40 centimeters which dwells on the banks during summer months in waters whose temperature does not go below 6° C. At this time there exists on the banks in hydrographical conditions of the average year, at about a depth of 35 meters, a sharp separation of as much as 9° or 10° , between the cold deep waters where the cod stay and the layer of warmer water which the squid do not leave. It suffices then at the first try to leap above this thermic barrier to seize, in the close ranks of squid, the coveted prey and to return to eat it in the waters of lower temperature. In good years, the fishermen can catch squid close to the surface which they use to bait their line without having to change their place of anchorage.

The banks of cod are composed of individuals of the same size and age. It happens that in their displacement some meters from the bottom that the fish are gathered in a school so close-packed that the modern procedure of echo sounding gives a double echo, the first on the school of cod, the second on the bottom.

In certain circumstances, especially during the capelin season, the cod comes up to shallow waters and stays there as a group. In this case, they scorn the bait of the fishermen.

The fecundity of the cod equals its voracity. The number of its eggs can attain 6 to 7 millions each spawning, sometimes 9 millions. This is not a record, nevertheless, for certain fish exceed this, the turbot for example which spawns an average of 12 million eggs.

The cod was known from remote antiquity on the coast of western Europe. Well into the Middle Ages one found it in abundance not only in the North Sea but also in the English Channel and the Bay of Biscay. During the 11th and 12th centuries, it was the object of a considerable trade, fresh and salted, in most of the ports of Normandy and Brittany.

During the 13th century, the cod abandoned little by little the Gulf of Gascogne, then the Channel, and its fishery became insignificant. Since then the French fishery for cod has been in the North Sea. But in time, access to this sea was forbidden by the Dutch who intended to take for themselves by force of arms exclusive exploitation. The maintenance of this important industry required that new fishing grounds be found, far as they might be from France, since the salting of fish permitted it to be sold in a good state of preservation after a long period at sea.

It was thus that the fishermen of France and Brittany carried their industry to the vicinity of Iceland, where it was established in the first half of the 15th century, to be extended, at the beginning of the following century, in the rich fishing banks discovered in the vicinity of Newfoundland.

Aside from the cod, one finds in the coastal waters of Newfoundland and on the banks, many other species of fish. Four among them are particularly well-known among the cod fishermen. The haddock (*Gadus aeglefinnus*), which the fishermen call anon, belongs, like the cod, to the important family of Gadidae. In its general aspect, it is distinguished easily by a black spot on each side underneath the first dorsal. Its length, moreover, does not exceed 80 centimeters, with a maximum weight of eight kilograms.

Also common in the North Sea, the English Channel, and the Gulf of Gascogne, this fish (the haddock) is caught by deep-sea trawlers and has been long known and appreciated in the French markets. But it is in the vicinity of Newfoundland, Iceland, and other places of the cod fishery that one finds this fish in great abundance. More of a bottom fish than the cod, it never comes up, as sometimes the cod does, toward the surface waters. It seeks water temperatures a little higher than those preferred by the cod, so that although the two species have the same habitat, their great schools seldom overlap. It is rare, however, that among a catch of one kind or the other, the fishing gear does not catch a certain number of representatives of the other.

The common halibut (*Hippoglossus hippoglossus*) is a flat-fish of the family Pleuronectidae, of which it is the giant. Individuals have been taken of this species attaining a length of 3-1/2 meters with weights exceeding 350 kilograms, and it is not unusual to take specimens of 2-1/2 meters weighing 150 kilograms.

Essentially an Arctic fish, the common halibut lives in the coldest waters of the Atlantic and Pacific. In the latter ocean, it is the object of a fishery of the first importance in the coastal waters of Alaska. In the Atlantic, it is found on the coasts of Europe from Iceland to the English Channel. But it is in the places of the great gatherings of cod that this species is found most prevalent. Its geographic range corresponds very nearly to that of the cod, with its maximum density in the coldest waters.

Strictly a bottom fish, as are all the Pleuronectidae, the halibut is characterized, as are other flounders, by its ability for mimicism, which is, among this group, raised to the highest degree. A halibut lying on the mud is almost black. If it happens to be on a sandy bottom, its dominant color lightens instantly to agree with this new bottom.

The "Bailai" or false-halibut, which one finds on the same fishing grounds as the halibut, is distinguished by its size which does not exceed 60 centimeters for a weight of 2 kilograms. With its mediocre eating quality, it does not present any interest for the fishery.

The herring abounds in the coastal waters of Newfoundland where they fish for it nearly all the year. Up to the present, its fishery has always been neglected on the banks, where it abounds equally at certain times. It plays an important role in the history of the great fishery of Newfoundland because of its importance as bait, and in the controversies between the French and Newfoundlanders concerning its capture which occurred in the 19th century.

The capelin (Gadus minutus), valued equally during the centuries as a bait of first quality, holds a fundamental place in the industry of cod fishing, is a little fish of the family Salmonidae, with black back and white stomach, a little larger than a sardine. Very abundant on the coasts of Newfoundland, it is taken in enormous quantities at the islands of St. Pierre and Miquelon at the time of spawning when it comes to deposit its eggs in the coves of these two islands, at the extreme edge of the shore.

With a regularity rarely disturbed, the capelin run, until recently, everywhere anxiously awaited, commences between June 10 to 15 and lasts about a month. The tide rolling up on the shore carries such quantities of this little fish that the sea loses its green color to become milky, and as the tide falls leaves thousands behind on the flats. These fish, rolled up on

their sides are only a fish of second choice, and it is at high tide that the fishermen, handling dip nets, soon fill their boats. While this suffices to provide bait for the sailing trawlers, it is with the seine that enormous quantities of capelin are caught.

This fish is equally esteemed for its eating quality. At St. Pierre and Miquelon it is eaten fresh, also dried and smoked. The bank fishermen salt it in barrels for their personal provisions. Dried capelin, prepared by simple exposure to the sun after a light salt, are a regular export to Brittany and Normandy, regions where it is greatly esteemed and sought.

Chapter III. The Shore and Bank Fisheries

The first form of fishing practiced in Newfoundland was the "shore" fishery. Besides the Normands and Bretons and perhaps the Basques, the Portuguese devoted themselves to it from the beginning of the 16th century. The latter, little by little pushed out from the coast by the French, then by the English immigrants come to settle in Newfoundland, equipped themselves finally only for the "bank" fishery.

The shore fishery was first practiced at Newfoundland and the neighboring islands of St. Pierre, which later became St. Pierre and Miquelon, and without doubt also the island of Cape Breton and on a part of the shore of the peninsula named Acadia, later, under the domination of the English, called Nova Scotia.

The first boats employed in this fishery were the caravels which were called "crevelles" at the Normand ports of the English Channel. Their tonnage varied, in general, between 50 and 70 tons. The Basques used the largest, sometimes up to 140 tons. They sailed out of Dieppe, where the great outfitter Ango was one of the first to interest himself in this distant fishery, from Rouen, Honfleur, St. Malo, St. Brieve, Binic, then from Capbreton, Bayonne, Saint-Jean-de-Luz, Bordeaux, and from La Rochelle. Besides the cod fishery, the Basques, on arrival at Newfoundland, also pursued the whale.

The origin of the caravels, which were the best boats of the period, is not known precisely but they appear to derive, in their plan, from a rather lighter boat used in the Mediterranean. It was with the caravels, and thanks to them, that the Portuguese, who without doubt used them first, undertook in the first half of the 15th century their patient progression along the coast of Africa toward the Cape of Good Hope and the route to the East Indies.

They were endowed with excellent nautical qualities, so that they held from the very first a superiority in every way, from their keel and harmoniously simplified lines, to the other boats of the period. The sheer, not exaggerated since the shape was fortunately trimmed from bow to stern and with no superfluous curves, adapted itself to the design of the line of the sides.

The stern house carried generally two storeys, the lower extending to the mainmast and the higher to the aftermast which was called, before having the name mizzenmast, the trinquet de misaine, the foremast being simply the trinquet.

Under the bowsprit was another small sail, the sprit-sail, which remained in use for several centuries on all boats of any importance.

One hardly worried at all, on the boats of this epoch, about where the crew would sleep. There was only one cabin near the stern for the captain. Everyone outside of him who lived on board slept on the deck, on his own personal bedding in the shelter of the rear house, from which all were excluded in order to always be ready to jump up for manouevers.

Under the decks were arranged the hold for cod, the bins for sails and supplies, and the storerooms.

Because of their seaworthiness and their speed, the caravels enjoyed the first advantage of being nearly the only boats of the period which were capable of making their way, in spite of contrary winds, to their objective. They held, in fact, the advantage, even taking account of leeway, of sailing six points to the wind ($67-1/2^{\circ}$), which gave them an excellent advantage in tacking.

During the 16th century, appeared vessels with better square rigging and with two or three masts. The caravels disappeared in the succeeding centuries.

On board the first vessels of the great fishery, besides his prerogatives of general authority, the captain was the fishing master. As on all boats of the period, it was the pilot, a specialist in navigational problems, who undertook the responsibility of getting the boat to its destination, of determining its daily position and of fixing, in consequence, the routes to follow in the course of crossing.

At the beginning of the 16th century, most of the pilots knew how to determine latitude by the height of the pole star above the horizon, or by the meridional height of the sun. But the instruments which they used then, the astrolabe or arbalete, also called Jacob's rod, gave very imprecise angular measurements of the astronomical observation of latitude which was accepted as the basic element for daily navigation. Also the navigators had no means of determining longitude at sea and, practically, means for this was not possessed before the 19th century.

Navigation was done by "estimation", the pilot determining position and course by basing it on compass readings and on speed, the latter having to be guessed since the ship's log was not yet in existence.

The astronomical observation of latitude was more useful in checking estimated position for, when the boat had passed a long period at sea, the daily errors of estimation would accumulate according to the laws of chance and there would result an uncertainty of many degrees, as much in latitude as in longitude. The observed latitude was, on the contrary, exempt from accumulative errors, though perhaps imprecise, so that the result of an average of a series of daily observations approached more nearly the actual latitude than one could obtain by estimation. When circumstances permitted, which was the case for Newfoundland and the banks, one would place himself on the latitude of the destination, then sail east or west, sometimes tacking when the winds were unfavorable, and maintain this direction until reaching the destination or recognizing the vicinity.

Besides the results of "estimation", corrected or not by the observed latitude, the pilots held great count in "signs", to which their experience gave very often a real practical value: flights of different birds which announced the proximity of land or of certain oceanic regions and, in particular, the Newfoundland banks; the presence of diverse shoals of fish and the direction of their migration; changes in the color of the water; sudden changes in climate, typically characteristic of arrival in the neighborhood of Newfoundland.

Information on the composition of the crews on these first boats engaged in the shore fishery is very vague. One can sometimes estimate their numbers as about 20 men, including the captain and pilot. On the large Normand caravels there was, without doubt, a somewhat larger number. Hiring was done by "the share", a method of payment always practiced, since way back, on the sailing ships of the great fishery, and which resulted in a true association of the owner and the fishermen.

The formula of "the fifth" seems to have applied at the origin of the Newfoundland fishery. It worked as follows: on return of the boat to its port of outfitting, the net value of the fish was established by deducting expenses from the gross value. This value was divided into five parts, four of which went to the outfitter or owner, one to the crew. The last fifth was itself divided in a certain number of parts which were divided among the crew according to a proportion determined by the importance of their functions, the captain receiving three or four parts and, sometimes, a supplementary commission on the sale. The cabin boys, on the other end of the scale, were generally given only a half share.

Each fisherman received, besides, before his departure from port, a gratuity and an advance which constituted the principal part of his remuneration. In general, the giving of advances and the mode of sharing varied notably from one port to another. As on all boats going for distant expeditions, the feeding of the fishermen was then based on salt fish. Scurvy, consequently, was prevalent among them. As a result, the crew took to the custom of feeding themselves on the products of their fishery in a proportion more or less important and the state of health would progressively improve.

Departure from the ports of outfitting took place in February or March. The return was from October to December, according to whether the boat had succeeded in getting its load more or less quickly, so that the fishery was followed, in general, from April to October, sometimes up to November.

The cod being everywhere abundant in Newfoundland waters and in the neighboring regions of Cape Breton and Acadia, the main question for the captain was to find for the season a bay presenting good conditions for the drying of fish, which was done ashore on the beaches. The better of these sandy beaches have extended level stretches of large pebbles which hold the heat of the sun and furnish better conditions for aeration and drainage of the moisture. At first there was room for everybody but with the rapid increase of the number of boats, the choice of the better places led to many disputes.

The Malouins (natives of St. Malo), who were soon the most numerous and, with their corsair temperament, the most resolute in defending their places, had at an early time adopted as their exclusive fief the northern peninsula of the island, which they called Petit-Nord. According to Father Charlevoix, the fish were somewhat smaller there than in the Placentia Bay to the south of the island, but were better suited for the Mediterranean and Levant trade, a statement which indicates that at the time of that historian of the 17th century, the cod was a commodity of distant export for the French dealer.

In order to guard against intrusion, the Malouin flotillas were accompanied by coast guard (*garde-cotes*) vessels armed at community expense and, as these boats, which did not take part in the fishery, moved from one bay to another in exercising their surveillance, they used the opportunity to land "barbers", the presence of whom among the fishermen resulted, to their profit, in the first organization of medical assistance.

On its arrival to the bay where it was to fish, the boat was firmly anchored as close as possible to shore, generally with two anchors. Its two long-boats were put over and all the crew went ashore to build a landing dock called echafaud or chafaud which served as a place for unloading and working on the cod, an installation at first very primitive, for which they used small pines, the "pignadac" of the fishermen of the Biscay coast.

These preparations accomplished, the crew was divided into two groups, one of which was employed in fishing, the other in preparing the fish. The work was pursued from the first hour of sunrise until nightfall, with a short interruption for a meal at noon.

It is probable that in the 16th century, during the first period of the shore fishery, the crew returned to sleep on board the boat each night. This was safer in a country inhabited by unknown people, and the shore accommodations were very simple. Finally however the custom prevailed little by little to completely empty the boat after its anchorage. Barracks were constructed to lodge all the crew and provisions were also unloaded. During all the period of their stay on shore the fishermen lived thus at the same place as their work which made for no loss of time.

During the 17th and 18th centuries, they installed at the extremities of the dock facing the sea two cannon near which two cannoneers were permanently stationed to defend against all attack, whether from the natives or from the Anglo-American pirates.

Up to the 19th century the shore fishery was a net fishery. The gear employed was a kind of seine which was stretched out by means of the long-boats and which was hauled to the shore. The cod caught were thrown in the boats which took them to the landing dock. Then they underwent preparation for salting and drying according to a technique about which one finds definite rules for the operation process practiced in the 18th century.

As soon as landed on the wharf, the cod passed to a convenient cutting table where they were headed, gutted, split and washed.

The fish, opened flat by the operation of splitting, were immediately salted. For that, they were piled orderly, head to tail, each cod being vigorously rubbed with salt, then covered with a layer of salt proportional to its weight.

These piles, protected from inclement weather by canvas tarpaulins, remained thus for eight days at the end of which time they constituted the green-salted cod, ready to undergo the long process of drying.

To proceed to the latter, the cod, after a careful washing, were laid out, flesh up, on the beach, or, sometimes, on wooden platforms built on posts two or three feet above the ground. Thus exposed during the first day of preparation, they took the "first sunning".

The second day the cod were again laid out one by one on the beach. They took the "second sunning" until noon; after which they were assembled three by three.

On the third day, a third exposure, which lasted the day, constituted the "third sunning". At nightfall they were formed into bundles of eight called "gavelottes".

The "fourth sunning" was given in the same condition as the preceding. On the evening of the fifth sunning, the cod were gathered in larger bundles, the "moutons".

At the end of the day of the "sixth sunning", the cod were amassed in piles of about fifty hundredweight, named "meulons", (haystacks). They were left thus for 6 to 12 days. At the end of this time, the cod were again laid on the beach. This was the seventh sunning, a day in which the piles were reformed in a fashion such that the less dry fish were placed in the upper part.

Fifteen days later, the eighth sunning was given in conditions identical to that of the preceding; then one waited a month to give the ninth sunning.

The preparations were then terminated and the drying had been so effective that cod thus treated could be sent to the hottest country without fear of spoiling in the course of the voyage.

The drying completed by this method required a period of almost four months. It could, then, be applied only to cod captured during the first part of the season. As the date of departure approached the fish underwent a drying more and more incomplete. It became, then, an article of regional exportation or of local consumption on the return home. The last cod caught were put in boxes green-salted in the manner in which the bank boats practiced it.

The fishing season ended, the men embarked and boats returned to sell their catch in France, abandoning the temporary installations which had served in the preparation of the cod. During all of the 16th century and part of the 17th, the French did not have a permanent installation in Newfoundland.

If one can hardly doubt the priority of the coastal fishery, it is, however, very probable that the bank fishery appeared but a few years later. Without doubt, in fact, it happened often to fishermen arriving in April to find the bays closed by pack ice. It would not appear doubtful in such case that they did not have the idea of taking their chance in the open sea in awaiting the opening of the island shores, and that they were thus led to fish temporarily on the banks and to note the richness of these waters in cod. Moreover, one would judge that it was wasteful to go to fish and work on the shore of Newfoundland on the fish with which one could fill the boat directly at sea, whence it resulted that part of the boats equipped themselves uniquely for the bank fishing.

The initiative in this fell to the Normands, for the Bretons, and especially the Malouins, stayed for a long time faithful to the shore fishery.

The first certain evidence of a boat equipped exclusively for the Grand Bank fishery is traced to the year 1536. From this time, this outfitting was always practiced, along with the outfitting of numerous fleets for the coast of Newfoundland.

The crews sailing on these boats employed in the bank fishery were always smaller than those necessary for the shore fishery, for the handling of the fish was much simplified. Aboard vessels from 50-70 tons, there was hardly ever over a dozen men. It could be as much as 18 men for boats attaining 90 tons. As a general rule, a cabin boy was shipped for each 10 men, in order to insure continuity in the recruitment of fishermen.

The command of these bank vessels was exercised by the captain, a sailor elevated to this function by reason of his practical knowledge of navigation on the high sea and especially his experience in the fishery. He was assisted by a pilot to whom fell more particularly questions of navigation and by a boatswain chosen for this duty because of his experience and authority.

At this distant epoch, the fishing season lasted sometimes almost all the year, under conditions much harder than those for crews engaged in the shore fishery. The ships which had to take on salt at the Isle of Rey or at

Brouage left their port of outfitting in January or February; those which had their salt aboard in advance left in February or March. The boats which made only one voyage a year returned in July or August, but those which had the chance to return in June with a full trip of cod usually made a second trip. In this event, they would not return until November, sometimes even December, so that work on the banks went on from April to October or November.

A roving sort of fishery was practiced on the Grand Bank, but this localization was not exclusive. From the 16th century numbers of captains would take their chances on neighboring banks, as well as in certain regions in the Gulf of St. Lawrence, notably in the neighborhood of the Magdalene Islands.

The outgoing crossing was made by the southern route, long followed by the sailing vessels, by which they avoided a long series of contrary winds. The captain was apprised by signs, and especially by the flight of birds, of the approach to the banks, of which recognition was made by sounding.

On arrival at the place of fishing, sometimes even in the last days of the crossing if weather permitted, the carpenter and his helpers installed on one side of the vessel, generally the starboard, a platform exterior to the side of the vessel. Some barrels of half-hogshead size, supplied with double bottoms, were solidly fastened there.

When the captain decided to start fishing, the boat was hove to under bare poles, the topmast generally taken down, the helm made fast under the lee. This done, the platforms stayed on the windward side so that the lines would not drag under the hull.

Each fisherman, line in hand, installed himself in one of the barrels, covering himself with his cuirier, a huge leather poncho which covered him from the neck to the knees, so that water falling off the cod could not penetrate. It was this fishing post which he occupied each day, from dawn to dusk, exposed, without other shelter, to the storms of the rude climate of the banks and the showers of icy spray.

Fishing was done by means of a very stout line held in the hand, about four millimeters in diameter and about 100 fathoms long (actually about 160 meters-80 fathoms), weighted by a lead of 8-10 pounds. Under the lead at the extremity of the principal line was a leader of finer cordage about 6-10 meters long, to which was fixed the hook. Sometimes the lead was crossed

by a horizontal iron triangle about three feet long which carried a leader at each of its extremities. Each man received for the season 10-12 lines with a provision of leaders and hooks.

The fisherman having run out his line began a continuous up and down movement in order to attract the attention of the fish to the bait fixed on the hook.

There is no information concerning the baits used during the early days of the bank fishery. It does not seem that the fishermen of the 16th century used fresh herring and capelin which they could have procured readily on the coast of Newfoundland or on the islands of St. Pierre and Miquelon, nor squid which they could have caught, in season, at the same place they were fishing. It is possible they used, to a certain extent, salted herring and mackerel carried from France, and sea birds caught on the line on the banks, but it seems that they always used the waste of their fishery, the heads and viscera of cod.

When a fisherman sensed by a tugging movement of the line that a fish was hooked, he pulled him to the surface and landed him by gaffing him in the gills. When he happened on a very large fish, he used a kind of landing net, the manet (gill net) or truble (hoop-net).

Such is the voracity of the cod that it often happened that one fish already hooked on one line would hurl himself at the bait of another hook, hooking himself equally. When a cod was found thus hooked, it was credited to the fisherman whose hook had embedded itself nearest to the eye, because it was considered that the hook which had penetrated most deeply (down the throat) had been taken first, and that the fisherman which had not noted the capture made on his line should pay thus for his negligence.

As soon as the cod was unhooked, the fisherman pierced it by the back on the head on a sharp point on the rail to his left and with a sharp stroke with his knife he cut out the tongue, which was evidence serving to establish his count of cod each evening at the end of fishing. Sometimes he opened the stomach of the fish to withdraw the entrails for baiting his line; then he threw it in the cod bin on the deck. The tongues, delivered each evening to the captain, were generally salted in barrels. They have always been considered choice delicacies in some regions.

On the other side of the cod bin was a strong bench, the cutting table, on which work on the cod was carried on.

Each fish was seized from the bin by a first man, the "header", who placed it on the table and cut off its head. Part of the heads were saved for the daily stew of the crew. Others were saved for bait. The surplus was thrown in the sea.

From the header, the cod passed to the "splitter". The latter operated differently according to the preparation, au plat, or hollandaise.

In the first case (au plat) the cod was split from one end to the other, from the beginning of the tail, saving on the back just enough flesh for it to open flat without inequalities in thickness. The fish thus opened, the splitter pulled out the backbone back to the tail; then he carefully washed the abdominal cavity in a pail filled with water in such a way as to remove the last traces of blood. The cod were then thrown in the hold where the salter gave them the "first salting" by rubbing them one by one, then piling them one on the other in lots separated by a thickness of salt proportional to the size of each fish. A few days later, the first salting was followed by a final salting, with packing away of the fish for the rest of the trip.

When the cod was prepared hollandaise or "in the round" a practice which, while much in vogue in Iceland, was never followed much in Newfoundland, the splitter opened only the body cavity to the anus, saving almost all the bone. Then the fish was washed, brushed, and twisted to remove all the blood. The cod, piled as nearly as possible by lots of equal weight, were then salted and carefully packed in casks where, after a first natural settling, they were pressed down by means of a screw-jack.

The work was followed thus each day of the trip, with a short rest for a noontime meal. At the last light of evening, when it was no longer possible to see the lines, the captain called a halt. Each man brought him the tongues by which his count for the day was checked and written in the account book. Those who had the smallest captures by number had to wash down the decks of all the detritus which had accumulated during the day's work.

The drift fishery was practiced on the banks in the 16th, 17th and 18th centuries. In the course of this long period, some ameliorations were introduced for the fishermen. The first consisted of doing away with the exterior platform and installing the barrels on the deck itself, along the side.

The men could thus lean against the rail, at the same time using a rod installed in such a fashion as to act as a roller. Later the custom became prevalent of putting before them, at eye level, the relative shelter of a large tar-treated tarpaulin.

The business of coast fishing and bank fishing thus went on simultaneously, the first preparing the dried cod which was brought back ready for export, the second filling their holds with green-salted cod which was sold thus or further dried after returning it to port.

Chapter IV. Treaties and Disputes

Among historically proven facts, John Cabot, departing from Bristol in 1497 under the flag of Henry VII, king of England, was the first navigator who attained, in the same year, the northern latitudes of the New World. Having landed at a point which it is not possible to locate with exactitude, although most historians fix it on the coast of Labrador, he took possession, in the name of the English crown, of all the new lands extending from the regions discovered by the Spaniards to the Arctic Circle.

During the course of almost all of the 16th century, the English government failed to take any advantage of the rights he had established so precisely, and the indifference was such that the fact was little by little forgotten. The goal assigned to Cabot had been to seek a passage to China by the western route. This first attempt to discover the famous Northwest Passage, which was to be followed, after a brief time, by many others, had only a commercial objective in which the taking of possession of frozen lands seemed of little interest. Also no dispute arose after the expedition of Verazzano, who, in 1524, took possession of the same territory in the name of the king of France, Francis I.

As with Cabot, one can only affirm that Verazzano had landed at Newfoundland. Be that as it may, at the end of his expedition and of the voyages of Jacques Cartier between 1534 and 1540, then the founding of New France by Champlain, the French considered that Newfoundland, which Jacques Cartier had first recognized as an island, belonged to them in the same way as their new continental possessions. This thesis was so well accepted by the English that in 1591 the fishermen of Guernsey addressed the authorities of St. Malo to demand, and to be refused, permission to fish for cod at Newfoundland.

The English continued to come to the great isle during the first half of the 16th century. But if, aside from the fur trade, they interested themselves in the fishery, rather than engage in it themselves, at the risk of conflict with the French, they found it much more practical to buy from the latter in this region the fish with which they loaded their boats for selling on the British markets. At the end of the 16th century, the English trade with Newfoundland had acquired a great importance.

If, from the 16th century, the French considered themselves masters of Newfoundland, it was not, however, until the beginning of the 17th century, probably about 1603, that they founded their first permanent establishments. The Malouins, who were the most numerous, contented them-

selves with their annual expeditions to the coast of Petit-Nord, the Normands and Rochelais engaged more and more in the bank fishery; the first settlers were the French Basques. They settled in the southwest part of the island, on the shores of the peninsula of Avalon, the deep indentations of which gave shelter to their cod fishing boats and to whalers come from the ports of the Gulf of Biscay.

These settlers were everywhere few in number. At the end of the 16th century, their numbers did not exceed 300, which would be reinforced by 300-400 winter fishermen.

During this time, the island received a much greater number of English immigrants. Many of them came from Acadie, a region which had been colonized by the Scotch before being taken by France, whence the name Nova Scotia which it had retaken in the 19th century after the tragic failure of the French empire in America. Many of them were engaged in the fur trade. Others had founded fishing establishments.

The English government, imbued with the idea that this colonization was contrary to the interests of the Bristol dealers who wished to keep their monopoly on the distant fisheries, from the very first shackled the settlers with restrictive, Draconian, regulation. Since 1583, after the claiming of the island by Humphrey Gilbert, in the name of Queen Elizabeth, English governors had been installed at St. John's, which the French always called St. Jeans, and which was the capital, except for a short period at the end of the 18th century.

It was to the advantage of the British claim that the two kingdoms signed, in 1635, a convention, in the terms of which the French enjoyed in Newfoundland only the rights to fish in the waters of the island and to dry their fish on the shores, on condition of paying to the English crown five per cent on the value of the cod thus prepared.

In reality, this convention was never applied. The Malouins, in particular, continued to consider the Petit-Nord as their exclusive fief and to arm a warship to forbid access to it; and one saw, in the same year, 1635, a curious proceeding before the Parliament of Rennes, provoked by the refusal of certain outfitters to participate in this arrangement.

In 1640, a civil regulation endorsed by the Parliament, and having as object to put an end to the disputes between the fishermen for choice of

harbors and beaches, gave rights on the Petit-Nord peninsula to the Bretons and to the Malouins in particular. This monopoly was abrogated in 1671 by an act of the Council in which Louis XIV declared common to all his subjects "the rule made by the negotiators of Brittany regarding the subject of cod fishing."

In support of their exclusive claims to the Petit-Nord fishery, the Malouins made much, moreover, of the important state of their outfitting. They attested it by the fact that in the month of May alone, in 1628, 112 of their vessels were fishing from Newfoundland harbors.

Thus the convention of 1635 had no other object than affirmation by England of theoretical sovereignty in Newfoundland. In practice, nothing was changed from its former state. The tax was never enforced; it was even abolished, purely and simply in 1660, by Charles II who did not forget that he owed to Louis XIV the restoration of his throne. No objection was raised to the presence of French troops in the island, nor to the founding in 1660 of the town of Plaisance which the French hastened to fortify after driving out the English and Portuguese. Both had used for a long time this site which offered them a magnificent drying place in its beach, a veritable mosaic of large pebbles of equal size, which extended, perfectly uniform, a length of 1-1/2 kilometers and an equal width. The French fishermen, becoming masters of this beach, divided it in lots, the frontage of which was proportional to the tonnage of their boats. At the end of the season, each crew buried its excess provision of salt in a circular hole. The hole was covered with pieces of silex (silex-flint. The substance actually used is not clear to the translator. Flint would not fuse in an ordinary fire.) above which a great fire was built. Thus a hermetic closure was effected, under which the salt was preserved intact until the following season.

Things went thus until the ascent of William of Orange to the English throne in 1689. The new king, a resolute enemy of Louis XIV, sought respect for the rights which his predecessors had claimed in Newfoundland. Encouraged by the war of Augsbourg, he sent, in 1692, an expedition against Plaisance. At the height of the situation, the place was commanded by a governor, the Count de Brouillon; but the garrison was dangerously reduced: seventeen men in all. The settlers were called to reinforce it; then the governor had anchored sixty fishing vessels across the arm of the sea which commanded the entrance to the port, with orders to their crews to make a great disturbance, as if clearing the decks for action, when the English fleet appeared to attack.

The Basques, turbulent by nature, who manned these boats, acquitted themselves with great success in this mission, so that Commodore Williams, rather than engaging his vessels, judged it prudent to retreat after a cannonade of five hours to which the cannons of the place responded briskly, as well as the frigate *Sainte-Anne*, energetically commanded by the Baron de Lahontan.

After this warning, the French raised new fortifications around Plaisance, and the garrison was strongly reinforced. They sought, at the same time, to increase their exclusive rule by making the place strong as the base of numerous expeditions against the British settled on the neighboring coasts; raids which lacked any mercy, and to which the English did not fail to reply in whole measure when they were able, using the same methods. Soon everywhere at the heads of the bays, houses burned, women and children were carried away for ransom, stocks of dried cod were captured or destroyed.

The French did not stop at these simple raids. Many attacks in force were launched against St. Johns. Twice, in 1696 and in 1708, after the fall of their capital the English were not entirely evicted from Newfoundland. Alone, the little village of Carbonear, on Conception Bay in the neighborhood of St. John's, resisted all assaults.

During this period, the English fleet did not fail to launch attack on attack at Plaisance. But, as with Commodore Williams in 1692, Admiral Graydon in 1703, Captain Leake in 1704, and Admiral Walker in 1711 were unsuccessful in taking it.

It was the treaty of Utrecht which in 1713 made the English masters of Plaisance, as well as all the island of Newfoundland. Under the name of Placentia, the ancient capital of the French settlers remained one of the principal towns in the colony. It replaced St. John's as capital during part of the 18th century.

With Newfoundland and its dependencies, excepting St. Pierre and Miquelon, the clauses of the treaty of Utrecht passed to English hands Acadia, less Cap-Breton. The greater part of the French who had settled at Plaisance emigrated to Cap-Breton. They formed there, with the refugees from Acadia, the first nucleus of the population of Louisburg, the great fortress which was, for half a century, the center of French fisheries in the New World.

Nevertheless, the negotiators accredited by Louis XV were forced to lessen the wrong done to the French fishermen by the recognition of English sovereignty in the regions where they had exercised their industry for more than two centuries. They succeeded in making an agreement, at least in part, for the compensations claimed in their favor, by obtaining a concession of their right to continue to fish and to dry cod on all the northern coast of the island, from Cape Bonavista on the east to Point Riche to the west. This was the institution of the French Shore, which made the object, in the drawing of the treaty, of which the official text was in Latin, of Article XIII, translated thus in the French of the period:

"The island of Newfoundland with the adjacent islands belong henceforth absolutely to England, and to this end the Very Christian King will deliver to those who find themselves entrusted in that country, in seven month's time from the day of exchange of ratification of this treaty, the town and fort of Plaisance and other places which the French yet possess in the said island, without said Very Christian King, his heirs, or his successors, or any of his subjects, henceforth claiming whatever may be, in whatever place, on said island and adjacent islands in whole or in part. It will not be permitted them to fortify any place, nor to establish any habitation of any kind, except docks and cabins necessary and useful for drying fish, nor to live on said island in times other than those proper for drying fish. In which island it will not be permitted to the said subjects of France to fish and to dry fish in any part except from the place called Cape Bonavista at the northern extremity of said island, and from there following westward to the place called Point Riche."

One would think that these stipulations would have eliminated for the future all cause of conflict between the French fishermen and the British immigrants. The fishermen, Basques for the most part, who had followed the shore fishery in the Plaisance region, went to Cape Breton and especially to the Gaspé, a region where the cod was as abundant as in Newfoundland, and where there was room for them beside the first Canadian practitioners of a local fishery. The northern part of the island, along which extended the zone of the French Shore, had not yet been settled by the British. The Bretons, and especially the Malouins continued to fish and to salt their cod considering that nothing was changed for them by the terms of the treaty, since they had never made permanent installations in this region. On the other hand, the outfitters for the bank fishery, interrupted by the war, underwent a new prosperity at the return of peace; and as the high seas are the domain of everyone, there was little fear that there could be incidents, especially from the practical standpoint, since the English did not fish the bank.

In the years which followed the conclusion of the treaty, the French outfitting for the American fisheries constituted two fleets of about 250 sail each. The first fleet sailed about the first of January, the second took to sea during March. The principal ports of outfitting of these 500 vessels were Rouen, Dieppe, Fecamp, Le Havre, Honfleur, Granville, Saint-Malo, Nantes which, in this field as well as in the number of other sailings, asserted, in the course of the 17th and 18th centuries, its supremacy as the first French port, La Rochelle, Sables-d'Olonne, Bordeaux, and Bayonne.

The bank fishery was practiced by more than 100 of these boats, Normands and Nantais for the most part.

Others, in more or less equal numbers, outfitted, in the majority, in the ports of the Gulf of Gascogne, went to the fisheries of Gaspe and Cape Breton. The principal group, comprising some 250 vessels, almost all from Bretonny ports, St. Malo, Binic, Cancali, as well as Granville, fished the French Shore, especially in the region of Petit-Nord.

In order to avoid all conflicts between fishermen for the disposition of the beaches as areas for drying of which the suitability was very variable, according to their extent and the composition of their pebbles, the coast fishery was submitted to police regulations which remained influenced, until the Revolution, by the general dispositions of the rule of 1640, elaborated at the request of the St. Malo outfitters, and in line with the act of the Parliament of Rennes of March 31 of that same year.

This regulation, the application of which was extended in 1671, to all boats outfitted in French ports, stipulated that the master of the boat which first arrived and dropped anchor in the harbor of Petit-Maitre, which had been for a long time the gathering point of fishermen come to the coast of Petit-Nord, took the title of Admiral of the Fishery for all that season and that the token of this title would be permanently hoisted on the mainmast of his vessel.

The first prerogative of the Admiral was the right to choose the harbor where he would install for the fishery, as well as the beach where he would dry his cod, attributing to himself an area determined in proportion to his crew. To establish without possible dispute his rank and right of priority, he had to, before everything else, give evidence at Croc, situated in the bay of Petit-Maitre, where a deposition was made by a representative of his crew, a paper of notification bearing indication of the day of his arrival and

the harbor of his choice. This declaration carried his signature or that of his representative.

In the order of their arrival on the coast of Petit-Nord, the other captains signed on the same paper the declaration of the day of their arrival and an indication of the harbor and the portion of the beach of which they made choice among the emplacements remaining. To this end, the paper remained at Croc under the guard of one of the men of the Admiral, until all of the captains of vessels had inscribed their indications. The list of emplacements thus enacted were given to the Admiral, and the latter, who practically always settled at the place of choice which was the harbor of Petit-Maitre, had alone the right to arbitrate without appeal all disputes arising between interested parties.

Another clause of the regulation stipulated that if, in the interval between two fishing seasons, any dock had been destroyed by natives or by the forces of nature, the debris belonged to him who had become proprietor by choice of the harbor on which it was situated, and that it was forbidden to all others to take possession of these materials for use elsewhere.

Under penalty of 400 pounds fine, it was, moreover, expressly forbidden to captains to jetty their ballast in the harbors.

All other infractions of the regulation were punished by a fine up to 500 pounds, according to the value of the cargo and of the boat itself.

By publication of the Ordinance of the Marine in the month of August, 1681, Colbert codified the law, extending and generalizing the details of the regulation of 1640. However, while maintaining all the prerogatives and anterior attributes of captains first arriving at the harbor of Petit-Maitre, he suppressed the title of Admiral of the Fishery, which had been used in Newfoundland for 60 years.

One should state that in the following years, this regulation had to be altered to cut short a dangerous practice which became more and more general during this period.

The advantages reserved to the first to register at Croc were too evident not to be made object of a battle of speed between the captains. Now the departure from the ports of outfitting were made in a group, all the boats putting up sail the same day. Once at sea, the different fleets from the ports of

the English Channel sailing for the French Shore gathered, and were in order resembling a great flotilla which counted sometimes 250 sail, making the crossing together, each captain finding in this navigation in regular ranks a guarantee of security for his own boat. But, once the making of land was assured, and the worry of isolation on the high seas had disappeared, rivalry took free rein. If the wind was favorable, all sails were set. In the case of contrary winds, the captains had taken to the habit of putting their long-boats to sea, whatever the weather, sometimes at great distances from the coast, and ordering their better sailors to acquire for them, by this means, priority of arrival. This resulted in more and more numerous wrecks which led to the intervention of the minister (of the Marine).

A new ordinance rendered March 8, 1702, forbid captains to put their long-boats to sea before their boat had arrived to the anchorage, under penalty of 1000 pounds for the first offense and of corporal punishment in case of further infractions.

At the same period, the state of war with England led the Council of the King to take measures of protection in favor of boats of the great fishery which found themselves, in return, constrained to certain obligations. It was required of all captains of vessels outfitted for Newfoundland to turn into the hands of the Treasurer-General of the Marine, a tax of three pounds per ton, on receipt of which there was delivered a passport from the king. Absence of a proven passport by captains of vessels in the escort at the place of the fishery could lead to confiscation of the delinquent vessel.

Parallel to these diverse measures, which pertained more particularly to the outfitting for the Newfoundland coast, the navigation to the great fishery was the object, in its total aspect, of a certain number of dispositions of a general nature.

The first of these concerned the organization of command, in which the rules were the same for vessels engaged in the great fishery as for all boats making long trips.

Richelieu concerned himself with this question, as with all those which applied to the marine. In 1629, Louis XIII promulgated an ordinance decreeing that a school of hydrography would be established in the principal towns of the maritime region of the kingdom in order that command of vessels navigating the high seas would be entrusted only to mariners instructed and expert in the art of navigation.

Practically, the prescriptions of this ordinance were not applied. The old system persisted, the captains and pilots of the high seas being agreed as to their capability after passing a simple examination before the royal hydrographer, the only condition being the scanty knowledge required for these two positions.

The great Ordinance of 1681 created the commission of captain of the high seas, of which possession was required henceforth for command of all vessels making distant voyages. It declared detailed prescriptions on the functioning of hydrographic schools. It stipulated that the courses of the hydrographic professor were free and that their appointments would be paid on the money of the sea tax, that the school would be open at least four days per week, but that the professor had the right to take three months vacation per year.

A new Ordinance, promulgated April 15, 1689, carried new details on the instruction to be given to future captains and pilots of the high seas. It included instructions on "summary of the sphere, different kinds of maps, the division of time, the golden number, the solar cycle, the epact, currents and tides, use of the dividers and principles of the magnetic compass." The lessons bore equally on "the instruments for celestial observations and methods of making a good dead reckoning, the leeway of a vessel, and the way to observe and correct it," as well as "computing courses by the 'quartier de reduction'", a graphical method of solving navigational problems.

The wise precepts of Colbert were not limited to the question of aptitude for command. Aside from the security of the vessel and its crew, there was included health protection as well. The Ordinance of 1681 fixed the principle by measures which were enforced only after the Rule of 1717.

These acts prescribed that a surgeon would be required to sail on all vessels making long voyages, or fishing in Newfoundland, and having a crew of more than 20. On vessels with crews of more than 50, two surgeons were required. In the last case, it was rare during this period for boats on long voyages and never happened on fishing vessels. Many of the latter, especially the bank vessels, did not hire even the 20 men requiring a surgeon. Thus the number of surgeons shipped was much less than the number of vessels in a season. Nevertheless, this measure was beneficial and notably meliorated the lot of the fishermen.

Of course, the surgeons shipped by virtue of the Rule of 1717 had nothing in common with the illustrious surgeons of the royal navy. Possessing only a modest knowledge, they were often barbers, sometimes even sorcerers, rather than true surgeons. They were required to take a simple examination before two master surgeons designated for this purpose by the admiral in all the ports of the kingdom.

The surgeon had the rank of officer. Theoretically he enjoyed on board a legitimate professional independence, not being required to take part in sailing manoeuvres or the work of the crew. Actually there is plenty of evidence that the captain required him to cut cod, which seems to establish that most of the surgeons accepted voluntarily, and on condition of a just supplementary remuneration, the exercise of this function which required great steadiness of hand. Perhaps they were often even greater experts in this field than in that for which they were hired.

The surgeon was required to report to the captain daily on the health of the crew, and to notify him, in particular, concerning contagious diseases which ought to be isolated. He kept a journal which, on return, had to be presented to the port commissioner with a certificate from the captain. These two things were required in support of new applications for shipping, which left little doubt about the professional independence of the surgeon compared to the captain.

The surgeon supplied a cabinet of medicines which was, at first, the object of frequent frauds, either by want of items, or more especially by substitution of products, so that a detailed regulation had to be instituted for its shipping and its charge.

On long voyages, as well as for the great fishery, the position of the surgeon was soon found to be poorly paid. Also, during the course of the 18th century, recruitment became more and more difficult, constituting a great source of worry for the outfitters, whose recriminations became incessant. These grievances were officially rejected by a declaration of November 15, 1767 which confirmed and clarified the requirements of the Ordinance of 1681 and the Rule of 1717. But, in fact, a great deal of tolerance was used up to the time of the Revolution, and the vessels on which one found a surgeon became the exception, at least for the great fishery.

As a general rule, it was the captains who were the crew doctors and who arranged, in the exercise of this function, which could only be subsidiary, the cabinet of medicines, shipment of which was required on all vessels.

In order to prepare them to assume this charge, the captains received some lessons in elementary hygiene at the School of Hydrography which constituted their very meagre medical baggage; (this was) the very mediocre solution of a question of major importance with which necessity obliged contentment.

The crews of the boats in the coast fishery had less to suffer from this precarious medical care than the bank fishermen. The landing wharfs were close together and it was thus possible to put to common use the surgeons available. Moreover, working conditions were less rigorous on shore than on the bank, since the crews could sleep on land in cabins, having no worry about the security of their boat solidly anchored in the bay, and only going out in the long-boats when the weather permitted.

On the bank, on the contrary, the vessel stayed in the open sea for all the fishing season, with all the customary risks of sea fortune, aggravated by the risk of encountering, at night or in the fog, drifting ice; not the great icebergs, for they were stopped at the edge of the banks by their enormous draft of water, but the smaller bergs that the fishermen called *bourguignons* (literally: Burgundians) of a size attaining many thousands of tons, the shock of which constituted a mortal danger to the encountering vessel.

Moreover, while on the shore the fish was caught by net only during this epoch, the hook fishery created, for the bank fishermen, an additional risk which became even more serious in the 19th century with the handling of innumerable hooks on bottom lines, the line trawls. The fishermen were subject to frequent piercing by hooks, both in baiting their lines, and hooking themselves with the gaffs. These hooks were often infected by the use of ripe bait which the fishermen considered the most efficacious. Also these punctures often led to serious results, infections and blood poisoning, which have always constituted the most dangerous professional risks for the bank fishermen. In such cases, the very modest medical knowledge of the captains was often insufficient. By lack of care or the application of useless remedies, these infections often led to grave consequences. Many men died after weeks of terrible suffering. Others became crippled after surviving a lucky amputation.

Scurvy, so justly feared during this period, made less ravages among the bank fishermen than among the sailors engaged in other long voyages, because the latter were nourished, during their long crossings, exclusively on salted and dried foods, while the former had, for a long time, taken to the custom of making a major part of their diet from the fresh daily soup prepared from the heads of cod. In spite of this, this affliction was not unknown among the boats of the great fishery, and there was hardly a year without a certain number of men dying from it.

The period of peace which followed the institution of the French Shore in Newfoundland lasted until 1744, the year when open hostilities again broke out between France and England, to continue the following year with declared war.

From the 14th of March, 1744, Maurepas, then with the title of portfolio of the Marine, advised the outfitters of the imminence of a declaration of war with England. The 20th of May following, an act of the Council declared null and void all agreements between outfitters, captains and sailors of boats not yet at sea destined for the cod fishery, the bank as well as the shore fishery. However, hostilities not yet being officially declared, many boats, according to custom, had already left in January to take aboard their salt at the salt works and had gone thence directly to the banks without worry or thought to return safely to their ports of outfitting in October.

The following year the fishery was limited to a small number of boats outfitted for the bank. There was no question of sending boats to the French Shore, nor even to the coast of Cape Breton. The English colonies in Newfoundland and Nova Scotia had armed a veritable flotilla of war to the end of driving decisively the French from the maritime regions which they possessed or which they still enjoyed in America. In March of the year 1745, their forces carried the attack to Cape Breton and succeeded in taking Louisburg.

The return of a state of peace came again without any gains, for in 1748 the Treaty of Aix-la-Chapelle which put an end to the war stipulated that each of the belligerents give up, purely and simply, his conquests, with no change in the clauses of the Treaty of Utrecht instituting the French Shore. Thus the following year saw the resumption of fishing on the bank, on the French Shore, and at Cape Breton.

The Newfoundlanders accepted with bad grace the return of the French whom they had hoped not to receive again on the shores of the island. For a century the Newfoundlanders of English blood had been strongly implanted on the soil of the island, just as the Canadians of French blood had implanted themselves in New France; and they did not cease to be reinforced by a constant stream of British immigrants. Little by little the population settled on this barren soil, of which the coast alone favored settlement, expanded along the shores of the island. It was not wished to admit that the rights conceded to the French fishermen could deter this enormous expansion, since, if the first immigrants had been indifferent to the fishery, their descendents had come to make it, in the course of the 17th and 18th centuries, their principal industry.

While the French considered the right to fish on the French Shore a monopoly in their favor, the Newfoundlanders, standing on the text of the treaty, commenced to claim the thesis of a concurrent fishery, according to which the concession made to the French did not imply, for the islanders, any exclusion from this part of the coast.

If in reality the famous Article XIII did not implicitly settle the question of monopoly, the French considered that it was resolved by the manner in which the treaty had been accepted by all from the first. From its first going into effect, war vessels bearing the flag of the French king had been used, with no resulting protest, to enforce the clauses in the sense of a monopoly, forbidding absolutely access to the French shore by all foreign boats, preventing the French fishermen to establish in parts of the shore outside the limits. In spite of protestations by the Newfoundlanders, the exclusive right continued to be exercised, under the same protection, in the years which followed ratification of the treaty of Aix-la-Chapelle.

During this period took place the disappearance of the last of the caravelles and boats derived from this type which cod fishermen had used since the 16th century. In their place, was used, in general, the dogres (Dogger-boats), vessels of two masts, carrying on the mainmast two square sails, and on the mizzen-mast a square sail and a spanker sail; also (appeared) the brigatine boats of low freeboard, also of two masts, carrying square topsails and able to ship the oars when overtaken by calm. The brigatines were especially used for the bank fishery. Their dimensions, expressed in tonnage, could attain 120-150 tons, being notably larger than the ancient boats. They also shipped a crew of from 20-24 men, the crews of vessels fishing the shore being even greater. A little later the first schooners appeared, vessels of

50-80 tons, of refined form, the two masts of which, strongly raked, carried latin rigging.

With this increase in tonnage corresponded, for bank vessels, an increase in specialized personnel. Aside from the captain, the pilot, and the surgeon, a salter and a dresser took the rank of officers, the captain sometimes aided by the surgeon, reserving the delicate function of splitter. On boats preparing the cod in hogsheads in the round, a cooper foreman was shipped having the rank of non-seaman officer, as well as a boatswain. On any of the larger vessels one found, besides, a carpenter foreman, also a non-seaman officer.

The period of peace which opened after the treaty of Aix-la-Chapelle was only a break of eight years to a state of war, always latent between France and England in the 18th century. In 1756, new hostilities broke out. The fishery of the French Shore had to be suspended, as well as at Cape Breton after the capture of Louisburg in 1758.

At their risk and peril, some outfitters continued to send their boats to the banks, in order to benefit, if fortune smiled in avoiding the English war-ships, from the great profit realized by reason of the rise in the price of cod. But this fishery was greatly hampered by lack of crews, for the outfitting of the vessels of the King and the corsairs required the draft of the greater part of the maritime men.

During this time, the Newfoundlanders invaded the harbors of the French Shore, intending this time to take lasting possession.

Their hopes were again dashed by the provisions of the treaty of Paris of 1763. In this act, which marked the tragic fall of the colonial French empire, the plenipotentiaries accredited by Louis XV succeeded in maintaining the rights of the French to the French Shore. Article V of the treaty confirmed the clauses of Article XIII of the treaty of Utrecht, in giving them a favorable interpretation to the thesis of right sustained by the French fishermen.

"The subjects of France," it was here stipulated, "will have freedom to fish and to dry fish on a part of the shores of Newfoundland, as is specified by article XIII of the treaty of Utrecht, which article is renewed and confirmed by the present treaty."

While by the terms of the treaty of Utrecht it was not permitted the French to fish and to cure fish except on the French Shore, the treaty of Paris conceded them the liberty to practice these operations on this coast. Now this liberty could be imagined only on condition that any local concurrence for occupying the places of fishery and of drying would not restrict their use.

Article V stated, besides, the following provisions concerning the places of fishing other than the French Shore:

"His Brittanic Majesty consents to give the subjects of the Very Christian King the freedom to fish in the Gulf of St. Lawrence on condition that the subjects of France do not exercise the said fishing within three leagues of the coasts belonging to Great Britain, be they those of the continent or be they those of the islands situated in said Gulf of St. Lawrence.

"And, for that which concerns the fisheries on the shore of the island of Cape Breton, outside of said gulf, it will not be permitted to the subjects of the Very Christian King to exercise the said fishing within 15 leagues of the coast of Cape Breton; and the fishery on the coasts of Nova Scotia or Acadia and elsewhere outside said gulf, on the basis of former treaties."

In addition, in order to concede to France an indispensable base to exercise the rights of the fishery thus defined, in these regions separated from the homeland by the width of the ocean, England ceded to France the islands of St. Pierre and Miquelon, which had been taken by the treaty of Utrecht, under conditions defined by Article VI.

"The King of Great Britain cedes the islands of Saint Pierre and Miquelon, in all propriety, to his very Christian Majesty, to serve as shelter to the French fishermen.

"And his Very Christian Majesty is obliged not to fortify the said islands and to establish only the civil installments for the commerce of the fishery and to maintain there a guard of only 50 men for the police."

March 10, 1763, a dispatch from the Duke of Choiseul, minister of the Marine, made known to the outfitters that in application of the treaty signed the February 10th preceding, they could henceforth send, in all security, their cod fishing vessels to the bank as well as to the shore of Newfoundland.

On the strength of this assurance, the vessels resumed the following year, but in considerably reduced numbers, and with vessels of smaller tonnage than those which had been in use before the war.

The outfitters had some reason to mistrust the welcome they would receive on their arrival at their ancient places of fishing. The maintenance of French rights on the French Shore after the English victory had aroused a storm of protest in Newfoundland. During the war, the Newfoundlanders had moved in on the French Shore, especially around Cape Bonavista which marked, on the eastern coast, the limits to the extension of their establishments. They intended to stay there. As the vessels of the French arrived in Newfoundland in 1764, they found none of the security announced by the ministry. Incidents arose everywhere in the contested zone. The local authorities did nothing to quell the feelings. Many long-boats pulled up on the shore were seized and broken up by order of the commander of the English frigate Terpsichore. Many French boats were forced to leave this region and go to bays further north, and even to the western coast.

After these events, the outfitters of Saint-Malo, Granville, Bayonne and Saint-Jean-de-Luz solicited the government of Louis XV for energetic intervention. This was given at their request. The following year, the cod fleet arrived at Newfoundland under the escort of two royal frigates, which cruised the coast of the French Shore the entire fishing season. This was the origin of the Station Navale in Newfoundland, of which functioning was never after interrupted, except in certain periods of maritime war.

At the same time, negotiations were instigated at London by the Count of Guerchy, French ambassador, assisted by two technical delegates, Magon and Bretel, outfitters, the former from Saint-Malo, the latter from Granville. These negotiations were long and laborious for, for the first time, the British government, under pressure from Newfoundlanders and their representatives in Commons, officially sustained the thesis of concurrent fishery. In spite of the energetic attitude of the French representative, who refused all concessions on the basis of the principle of exclusive right to the fishery, in serving notice that this was his last word if they wished to save the peace, the parleys ended without achieving any result. In spite of the presence of the French frigate of the Station Navale, the difficulties continued between the islanders and the French fishermen, whose establishments had undergone many depredations, so many and so effective that as the latter's first object was profit, numbers of them were led, in the following years, to practically abandon the beaches of the bays of the French Shore in the neighborhood of Cape Bonavista.

In this affair, the French government had energetically sustained, as it had always done before, the interests of the fishermen. This constant solicitude for their welfare appeared, with particular evidence, in the text of a regulation signed by Choiseul December 24, 1772, in which the minister defined the obligations of everyone "in case of shipwreck of a Newfoundland vessel." The last paragraph is thus construed:

"If, after the fishing is completed, one or many vessels are wrecked, and the greater part of the vessels have already left, and the ones remaining cannot, without considerable loss, take care of the shipwrecked personnel, in this case his Majesty will assign a sum sufficient to provide for the subsistence and the passage of his subjects to France, and indemnity for loss of cod, oils and utensils that the captain is forced to abandon in order to make room for the shipwrecked, as well as the additional barrels of water necessary for sustenance; and this, on the sworn statement that the said captain and officers will make in report and deposition to the Bureau as well as to the Office of the Admiralty on their return to France."

Thus the minister provided direct recourse to the public treasury to indemnify the fishermen in case of shipwreck, and loss of profit that they had acquired at the price of extraordinary labor, for all that was not covered by the maritime insurance such as functioned in the 18th century.

It happened that in these years when the French fishermen found themselves partially eliminated from a portion of the eastern part of the French Shore, some immigrants of French origin settled on the west coast of Newfoundland, outside the limits then assigned. These were, for the most part, Acadians dispersed by the very celebrated "grande derangement" of 1754, and which regrouped on shores neighboring the country to which they hoped to return in better days. There was also, in the same neighborhood, Basques, descendants of the residents of Plaisance who had emigrated to Cape Breton following the treaty of Utrecht, and who, doomed henceforth there as elsewhere to British domination, came back to settle in Newfoundland, in places still free of occupants.

These "French of the West Coast" settled on the shores of the peninsula of Port-a-Port and the Bay of St. George, along some 90 kilometers. Their establishments in this region eased momentarily the thorny question of the French Shore.

The latter was tabled during the negotiations of the Treaty of Versailles which put an end, in 1783, to the War of Independence. France, this time, was in the camp of the conquerors. She wished hardly any other gain than to exact maintenance of the French Shore. Moreover, to the end of conciliating the ill will of the Newfoundlanders, she accepted redefinition of the limits in the sense of a partial exchange of shore. The new situation of fisheries in Newfoundland was regulated by Articles IV and V of the treaty, thus stated:

Article IV: "His Majesty, King of Great Britain, confirms possession of the Island of Newfoundland and the adjacent islands, as well as all annexed to it by the Treaty of Utrecht, with the exception of the islands of St. Pierre and Miquelon, which are ceded in all claims to His Very Christian Majesty. "

Article V: "His Majesty, the Very Christian King, in order to prevent quarrels which have occurred up to the present between the French and English nations, consents to renounce right to the fishery which belonged to him, by virtue of Article XIII of the Treaty of Utrecht, from Cape Bonavista to Cape Saint-Jean, situated on the eastern coast of Newfoundland, by 50⁰ northern latitude. And His Majesty, King of Great Britain, consents for his part that the fishery assigned to the subjects of the Very Christian King, begins at said Cape Saint-Jean, passing to the north and descending, by the northern coast of the island to Newfoundland, extending as far as the place called Cape Raye, situated at 47⁰ 50' latitude. The French fishermen will enjoy the fishery which is assigned to them by the present article, as they have had the right to enjoy that which was assigned to them by the treaty of Utrecht. "

Article IV did away with the humiliating conditions of non-fortification and limitation of the garrison of Saint-Pierre and Miquelon, which had been imposed by the treaty of 1763. If any one, in Newfoundland, should strive to find arguments to contest the fact of this abolition, it was rendered less indiscussable by the debates which the new treaty aroused in the British Parliament. In Commons, the opposition, led by Fox, violently reproached the government for having allowed a concession by which France could profit "to fortify the islands, and continue its exploitation in times of war as well as in peace. "

It does not seem that the new arrangement of the French Shore had aroused, at the time, any objections on the part of the French fishermen. Eventually it was affirmed that the French government had been duped in accepting this exchange. This opinion appears debatable. The portion of the coast of which France acquired use on the west coast, between Point Riche

and Cape Raye, in exchange for which she renounced claim to the east coast, between Cape Bonavista and Cape Saint-Jean, is, in fact, very rich in fish. Besides the cod, the lobster abounds there, and the salmon is taken in equally great quantity. New, in the 19th century, lobsters and salmon came to constitute for some of the French outfitters, an important supplement to the cod fishery. Moreover, this coast bordered on fertile soil which is without doubt, on the basis of many reports, the part of Newfoundland most favored by nature. Instead of hostile Newfoundlanders, the French found there the little Acadian colony newly settled, whose reception was sympathetic and near whom they found suitable facilities for storage and supplies. Without doubt the crossing was appreciably longer from the French ports to the west coast than to the east; but, in compensation, the fishermen found in this new zone of fishing, with beaches as good as those of the east coast, climatic conditions much more favorable to the drying of cod, a springtime relatively advanced following a more severe winter, but often dry and sunny.

The treaty of 1783 carried, as those which had preceded it, a serious fault, in the sense that its text did not settle the famous controversy of exclusive fishing versus concurrent fishing. By Article V, the minister of Louis XV, Vergennes, had proposed the following draft:

"The King consents to renounce... on condition that his subjects fish alone, to the exclusion of the English." The English government had refused to insert this clause because of fear of opposition from Parliament. But its plenipotentiary, Fitzherbert, proposed and got acceptance from Vergennes of a ruling on the question by an additional act, the tenor of which was as follows:

"The King, being definitely in accord with his Very Christian Majesty on the article of the treaty defined, will seek all possible means, not only in assuring execution with good faith and punctuality, but, moreover, will give on his part, all possible assistance to the principles which will prevent the basis for future disputes.

"To this end, and that the fishermen of the two nations may not have source of daily quarrels, His Brittanic Majesty will take positive measures to prevent his subjects from interfering in any way by their concurrence in the fishery of the French during the temporary exercise granted them on the coast of the Island of Newfoundland; and He will withdraw to this end the permanent establishments which are made there. His Brittanic Majesty will

give orders that the French fishermen will not be obstructed in the cutting of wood necessary for their docks, cabins, and fishing vessels.

"Article XIII of the Treaty of Utrecht and the method of fishing which has always been recognized will be the model on which the fishery will be pursued. The terms will not be violated in any way; the French fishermen will build only their docks, making repairs to their vessels, and not wintering there; the subjects of His Britannic Majesty, for their part, will not molest the French fishermen during their fishery, nor destroy their docks during their absence.

"The King of Great Britain, in ceding the islands of St. Pierre and Miquelon to France, considers them as ceded in order to serve in reality as shelter for the French fishermen, and in the entire faith that these possessions will not become an object of jealousy between the two nations, and that the fishery between the said islands and Newfoundland will be carried out (no farther than) at mid-channel."

The litigation was thus settled in as careful a fashion as possible, and it seemed well that the thesis of a concurrent fishery was definitely eliminated. The British Parliament resigned itself, some years later, in 1788, by authorizing "George III and all his heirs and successors to give the orders judged necessary by him or his successors in the government of Newfoundland, to remove all installations constructed by the English for fishing on the west coast of the island, as well as forbidding all vessels belonging to the English to be found within these limits, and in case of refusal, to constrain them by force."

The French fishermen did not profit for long from the tranquillity returned to the French Shore. Almost immediately, the wars of the (French) Revolution and of the Empire closed for almost twenty years the route to Newfoundland.

The advent of the revolutionary era coincided with the beginning of the importance of capital investment in the fisheries. The new method of financing interested itself, above all, in the bank fishery. It became, meanwhile, in consequence, to find partial application to the shore fishery.

Since the 16th century, the bank fisheries had clung to the old method of hand-lining for the capture of cod. About 1789, a Dieppoise, Captain Sabot, had the idea of replacing this traditional method, which up to then had no peer, by a line lying along the bottom supplied with many hooks, a

method which had long been employed in the Channel for the fishery called aux corde.

He made many of these devices by tying, end to end, pieces of line used in hand lining which he supplied, from point to point, with leaders carrying hooks baited in the usual way. Having furnished his boat with a strong anchor cable of hemp, he took his anchorage on the bank, and the long-boats ran out the lines, of which one extremity remained fixed to the vessel, the other being held to the bottom by a great stone, a buoy marking its position.

Each evening the lines were thus run out for the night. On wakening in the morning, they were drawn aboard, and the operation was repeated the next day.

Captain Sabot made thus, on his first attempt, a fishery so extraordinary at the time that he returned twice in the same season to Dieppe with a full load of green-salted cod. Thus he had, in the following season, a number of imitators, with the enthusiastic agreement of the fishermen who had seen the new method considerably augment their earnings, without spending harrowing days of immobility fishing from the barrels.

The results precipitated from this procedure, which led to daily movements of small boats (running out the lines) provoked accidents. Many men were lost and the maritime authorities were then led to hold a hearing immediately on this kind of fishery.

The official intervention did not produce any effect, and in the course of the following season, the line-trawl fishery was adopted by most of the French bank fishery.

Certain meliorations had already resulted from the new method of fishing. The first consisted of hauling in the lines with a hand winch instead of by hand. Three men conducted the operation. The line was wound around the winch, one of them turned the winch handle, the other cleared the hooks; the third gaffed the cod.

At the same time the yield was increased by fishing from both sides of the vessel, in place of using one set of lines. The set on the port side consisted of 24 lengths of 60 fathoms each, and was drawn in by the winch; the starboard, formed of 35 pieces of the same length, was drawn in either by winch or by means of a small boat.

The lines and the leaders were of treated hemp. The leaders or gangions, were about one fathom long, equipped with large silver-plated iron hooks of French make.

At Nantes, which was the principal port of landings and sale of cod, the fish were classified, according to size and weight, in four categories. The large, or market, cod weighed 900 pounds per hundred. The medium cod weighed 600 pounds per hundred; and the small cod 300 pounds per hundred. Finally, one classified together, as trash or ling, the small cod not accepted as of the best quality as well as such varieties as ling, whiting and haddock.

In the Normand ports, the market classifications were: la gaffe, which designated cod of exceptional size (taken by gaff); la trie or medium cod, la ling and la roguet, which included the small cod called valide or patelet; finally le rebut or trash. The sale of the latter was made by a count of 54 handfuls, being about 108 fish per hundred pounds. For cod salted in barrels, in the round, one dealt with a measure of 12 barrels of 66 handfuls per barrel. The salted barrels weighed 150 pounds dry of pickle; with pickle about 300 pounds.

At the beginning of the Revolution, the dry and green-salted cod commerce from the banks and from the French Shore carried a figure of transactions, enormous for that epoch, of 6 million francs. In 1792, which was the last year of the fishery of the 18th century, the outfitting for these destinations amounted to 202 vessels with a total tonnage of 191,153 tons.

Chapter V. The French Shore in the Nineteenth Century. The Convention of 1904 and the Treaty Shore.

In 1793, the beginning of the war between France and England, the taking possession of the colony of Saint-Pierre-et-Miquelon by English vessels suspended once more all French outfitting for Newfoundland. As it had been during the course of earlier wars, the cod fishermen turned corsairs, conducting an attack on English commerce with their boats which were always pierced in times of peace to receive an armament of from 10 to 12 cannons.

The signing of the Treaty of Amiens, March 25, 1802, returned to France the disposition of its fisheries in Newfoundland and possession of its colony. In hope of a lasting peace, the outfitters immediately pre-occupied themselves to reassume their industry. At first, by reason of the antiquated character of the old rules of the French Shore fishery, they solicited the minister to agree to a new set of rules.

In consequence, the outfitters of Saint-Malo, of Saint-Brieve and of Granville, interested in resuming the coast fishery, met at Saint-Malo on July 28, 1802, the Commissioner of the Marine presiding, in order to deliberate according to instructions of the minister, the best method of occupying the fishing places, on the use of the net called hallope, a kind of haul seine, for the purpose of catching capelin and launces for bait; and on means of favoring and encouraging the processing of roe, a question of great importance for the sardine fishery on the coast of France.

The assembly responded to the questions by demanding that the harbors and beaches should be assigned for a period of five years by the drawing of lots by the outfitters before the departure of the boats for the fishery; that the outfitters should be authorized to assure, outside the fishing season, guardianship of their docks and cabins; that, for the capture of bait, the use of the net called hallope, a destructor of the bottom of the fishing grounds, ought to be prohibited, and that the only gear authorized for this use should be the seine; that the seines employed, either for the capture of bait or of cod, ought to be put out only by the hand winch and not from land; that the command of vessels in the great fishery be only exercised, compulsorily, by captains licensed for the high seas.

This deliberation served as basis for the Regulation of February 4, 1803, of which the principal regulation applied to the mode of distributing the places of fishing.

In the course of the perpetual conflicts between the French fishermen and the inhabitants of Newfoundland, which had followed the signature of the treaty of 1763, the ancient rule based on signing the paper at Croc had already been modified. It had been replaced by the institution of a document of which one printed copy was given to the captain of each vessel at departure from the port of outfitting, with the obligation of indicating, on arrival at Newfoundland, the designation of the place chosen among those not yet occupied. On return from the season's fishing, the captain had to give this document of choice of harbor to the Commissioner of the Marine.

This method of distributing (the places of fishing) having given rise to disputes between captains, the Regulation of February 4, 1803, substituted for it, according to the wishes of the outfitters, the drawing of lots. This procedure took place before the departure, before the Commissioner of the Marine, so that all the interested parties could be heard in advance to proceed to an amicable settlement.

The distribution, thus arranged, of harbors and beaches was valid for three years. Henceforth no vessels could make regular trips to Newfoundland without proving assignment of a beach.

Every three years the outfitters or their proxies had to meet in general assembly at Saint-Malo, before the Commissioner of the Marine in this port, to proceed to a new division of the places of fishery.

In application of this Regulation, the better harbors and beaches for fishing and drying were divided into fishing places classified in four series, according to the number of dories or long-boats which could operate there. There was ranked in each series the places of fishing where 15 long-boats or dories could operate to advantage; those which could handle 10 to 15; those which could contain only 9 or less than 9; and finally those which were considered as unusable, and which were not included in the classification.

It was forbidden, on arrival at Newfoundland, to send any embarkation to land if floe ice was present, or if the vessel was farther than a myriameter (6.2 miles) from the shore. All violations of this interdiction were punishable by a fine of 1000 francs.

The title of master or patron of the fishery, substituted by the Ordinance of 1681 for that of admiral of the fishery, was abolished, as well as the advantages attached to its possession. Henceforth, policing of the fishery was

exercised, in each bay, by the eldest captain of those present. With the title of Captain Prud'homme of the bay, he was invested there with judicial and administrative authority. In the harbors which were, before long, reserved to the fishermen of St. Pierre, the prud'homme was elected by his fellow fishermen, and received a compensatory indemnity for the loss of the time imposed on him in the exercise of his functions.

Three months after the publication of the ordinance, war began again with England, without its going into effect. The English immediately retook St. Pierre-et-Miquelon, and seized a number of vessels which were at sea with the French Shore or the banks as their objective.

The crews of vessels not captured and succeeding in returning to France were cruelly tried by hunger. The outfitters counting on the supply of American provisions which the captains would find at St. Pierre, as well as on the resources of the State supply house, had shipped on their vessels only the provisions necessary to the crossing. Thus the return, which had to be made without touching land, resulted, almost always, in conditions of veritable famine. This tragic experience gave place, very shortly, to a severe regulation providing for food which would be sufficient for nourishment to the crew during all the fishing season.

It was thirteen years later before the French vessels could return to Newfoundland. The disastrous treaties of 1814 and 1815 saved, at least, the ancient fishery of France in Newfoundland, and gave back her old colony of Saint-Pierre-et-Miquelon. At the same time, the great fishery recuperated its personnel, of which a major part had, from the beginning, been retained on the British convict ships in captivity.

From the 23rd of June, 1815, Count Beugnot, State Secretary of the Marine and of the Colonies, called to the attention of the outfitters that, since protection of their vessels could be assured only for departures in the following May, he authorized them to sail at their risk and peril as soon as they saw no danger to their interests.

Meanwhile, came the Hundred Days which suspended again the outfittings, although the minister Decres had granted the concession authorizing them to sail under the Portuguese or Spanish flag, shipping as many foreign sailors as they pleased.

The vessels found themselves outfitted for resuming the fishery for many months but the first departures did not follow until some days after the return of Louis XVIII, July 8, 1815.

In this same year, the fishery on the French Shore was subjected to a new regulation, inspired by the Regulation of February 4, 1803. Completed by the Regulation of 1821, of which publication had been preceded by official recognition of all harbors and beaches, it fixed definitely the status of the French fishery on the coast of Newfoundland, although slight revisions were made by the Regulation of 1842 and the Decree of March 2, 1852.

The four categories of fishing places instituted by the Regulation of February 4, 1803 were maintained. The spots were distributed for five year periods instead of three. In consequence, the drawing of lots of the first three series took place every five years before the Maritime Inscription at Saint-Servan, the outfitters taking engagement to occupy the chosen places, and designating the vessels which would be affected. For division of the beaches, the vessels were divided in three series in which they were placed according to whether the number in their crews was a minimum of 25, 20 or 15 men. The drawing was made by classes of vessels. At the calling of the name of his vessel, each outfitter chose for it one of the places remaining free. A bulletin of the distribution was given him, and a document was made out indicating the taking of possession, with mention of the construction and gear which could be used on the beach. The regulation permitted the concessionaire to allow boats other than his own, which in this way could have the right to use the beaches. Each outfitter had the right to give up, at the end of the first year, the place assigned to him. A partial drawing each year distributed these abandoned places.

This distribution by lot applied to the harbors and beaches of the east coast, from Cape Saint-Jean to Cape Saint Normand, as well as the four harbors on the west coast: Port-au-Choix, Cove of Barnabe, Ile de Sauvages, and Ile Saint-Jean.

In general, each vessel moored and unloaded in the harbor or near the beach of which it had concession; it was obliged to disembark the number of men corresponding to its series. The cutting and drying of fish was effected by the part of the crew assigned to this work, while the fishermen embarked in the long-boats to catch the cod. Each crew had the right to fish in all the harbors, occupied or not, as well as in the open sea. Fishing outside the harbor of the concession constituted "l'expédition en dégrat."

Besides this fishery, called sedentaire, a nomade and sedentaire fishery was exercised in the bays of the west coast for which permanent occupation by a concessionary boat was not required. It sufficed in this case to affirm its privilege by anchoring there only once during the season. The boats which used this option generally practiced double outfitting, a part of their crew remaining on land to prepare the fish caught on the bank.

Finally, when there remained vacant places on the east coast, they could be distributed to bank vessels, which worked all season on the banks, and returned at the end of it to dry their catch on the shore.

Besides, six bays on the west coast were open to all the vessels holding concessions on this coast, as well as to vessels called defileurs du gulfe which practiced generally a double outfitting, and contented themselves in common usage of drying stations.

Ile Rouge, off the peninsula of Port-a-Port, was the object of a separate drawing without distribution of beaches, between the outfitters who desired to obtain a concession there.

Soon the Saint-Pierre outfitters obtained exclusive disposition of the Bay of Saint-George, of three places on Ile Rouge, and of four places at Cod-Roy.

Departures from French ports were authorized from March 1 for the west coast and the bank and from April 20 for the east coast, any departures after July 1 not being permitted.

During the long interruptions to which the French fishery had been subjected, numerous English colonists had established themselves on the French Shore. On protest of the French government, the British government, intending to prove entire good faith in the execution of the treaties, prescribed most rigorous measures to make the islanders move back, without delay, to a depth of six miles from the shores, all the establishments which they had built within these limits being conceded to France, and that access to this zone would equally be forbidden to all English boats, in order that no impediment could be made to the exploitation of the fishery by the French to which the officers and magistrates of the colony were required to give entire assistance in case of legitimate dispute.

These orders were never entirely executed. The "French of the West Coast" established in the region of the Bay of Saint-George and the peninsula of Port-a-Port, were from the first excepted, with the full consent of the French fishermen who found among them a better welcome and numerous services. In other bays, the presence of settlers of English origin was accepted and even sometimes encouraged by the fishermen, among whom many took the custom of entrusting the guard of their establishments during the winter to families settled in the neighborhood.

The Newfoundlanders did not fail to profit from this tolerance. At the period of resumption of the French fishery, the population of the island, almost entirely of English origin, amounted to 70,000 souls. The islanders, who could settle only on the coast where they pursued more and more the diverse industries of the local fishery, occupied themselves unceasingly to conquer the space they needed. Little by little, islets of colonization sprang up on the French Shore, at the same time that families of the English race came to settle next to little Acadian communities on the west coast.

During some years this systematic but still very diluted intrusion did not provoke any complaint on the part of the French fishermen, who could install themselves on the shore in less precarious conditions than they had had in the preceding centuries.

Conforming to the treaties, of which the local representation of British authority made itself a vigilant guardian, these establishments consisted only of light wood construction, but although this temporary character was imposed on them, the guardianship from which they benefitted in the interval between seasons assured them the benefit of a certain effective permanence. Fishing platforms and cabins could thus be made the object of careful construction thus ameliorating, in a certain measure the working conditions and the lodgings of the shore crews.

The dock or fishing platform constituted a kind of wharf built on great squared pilings from the nearby forest and of which the terminal platform projected sufficiently seaward that unloading of fish could be done at all stages of the tide.

On its part which bordered the beach, the construction supported a covered shed in which the fish were prepared for drying. The fishermen also baited their lines there in those stations where this method of fishing was used. The salt also was kept in this place sheltered from the rain.

This shed had at first been covered by means of strips of bark, as well as the cabins. In the 19th century, a great tarpaulin was substituted which was removed at the end of the season to render the places unusable. Later, tarred canvas was used.

After the dock was built the living quarters of the men were raised, simple barracks in which were arranged along the sides of the bunks, generally of wood one above another, in which each man slept, the mattress and coverings being his own property.

The quarters of the captain and first mate, who had to do a minimum of paper work and had to assure protection for the records and navigational instruments, were a little more comfortable. A stove, a table, some chairs and one or two clothes-presses constituted their furnishings. The doctor, when they had one, also had his own cabin.

The kitchen was a separate building used exclusively for this purpose. The equipment consisted only of a hook on which hung the kettle above a wood fire. In turn, each long-boat left a man ashore to function as cook for the entire encampment on that day.

The menu varied little. It always consisted of a soup made from cod heads, its principal quality being that it was hot. With it they ate fresh bread, with which the greater part of the stations were provided, potatoes brought from France, as well as vegetables, cabbage, radishes and salads that the more enterprising raised in small gardens, the fish waste serving as fertilizer. Each man received, besides, each week 500 grams of salted pork, 250 grams of salted butter, and a like quantity of fat.

Wine was rationed in variable quantities according to the habits of each group and individual and collective working conditions, with a minimum of two quarts per week. With a deplorable custom, alcohol bought by the outfitters at 96 percent and diluted to 40-50 percent, was distributed much more freely: theoretically a third of a liter, but practically a half liter per day.

Water is found everywhere in Newfoundland in abundance, but is not, without risk, to be used always for drinking. Typhoid fever raged frequently among the fishermen of the French Shore, and it had, often, no other origin.

The crews of coastal fishing vessels were composed, in parts more or less equal, of sailor-fishermen to whom fell the operation of the vessel and sailings, as well as the capture of cod, and an auxiliary complement of non-sailors called graviers (shore men) who had charge of the care of the beaches, construction of docks and cabins, and the long process of drying the cod. The crews of vessels in the shore fishery were, in general, greater in number for equal tonnage than those fishing the banks.

The fishery was executed more often by nets and also on a part of the coast, by bottom lines or line trawls.

The net fishery was used only on the east coast where the line fishery was forbidden. The only net authorized by the regulation was the seine, which was forbidden to be hauled from the land. The mesh was 48 millimeters between knot centers, that is to say, stretched. No dimensions were imposed on the seine itself. The length of seines used in the Newfoundland fishery varied generally between 150-180 fathoms, with a depth of about ten fathoms.

The net being placed aboard the seine boat, the crew looked for, at some distance from shore, the passage of a school of cod. As soon as one was sighted, the seine-master commenced to put over the seine into the water, letting fall, at the same time, a buoy which marked the end. Then he directed the boat in a manner to encircle the fish.

The circuit achieved, the crew of the seine boat, composed generally of six men, hauled in the floats and the leads in such a way as to form a vast pocket enclosing the fish.

In general, the long-boats did not go far from the station. They were watched by the men on shore who, on seeing the seine haul, joined them to load the fish in boats and to transfer it to the landing platform. It sometimes happened that a single haul netted 20,000 cod.

On the west coast, the fishery was prosecuted by seine and also by line trawl, the two procedures being sometimes employed simultaneously by the same crew. The lines were of variable length: the shortest carried 100 hooks. Sometimes they also used the hand line. According to season, the herring, the capelin, or the launce were used for bait. They were caught by means of a capelin seine. The dimensions of this net, fixed by regulation, were from

800-900 meshes deep and 30 fathoms long. Like the cod seine, the capelin seine was never allowed to be hauled from shore. Baiting was also done with cockles which one found in great quantities in certain regions of the west coast, and which were considered by many fishermen as the best of bait.

As soon as unloaded on the landing platform, the cod were dressed and salted; then during the following days the shore crew exposed them on the beach to the first sunnings which opened the long procedure of drying.

The first vessels to return to the French Shore in the 19th century were the brigs, their tonnage not attaining 100 tons. Later the dimensions of the vessels were augmented considerably, and one soon saw appear a certain number with three masts. The crews increased in consequence; their crews of fishermen and beach workers doubled to exceed about forty men.

It was in exceeding this minimum of 40 men embarked, not counting cabin-boys, that an ordinance published in 1819 required the shipping of a doctor on the cod vessels. As this size crew was never attained on the bank vessels, which found themselves thus exempted from the old minimum of 20 men rendering obligatory the shipping of one surgeon, one found doctors, during the 19th century, only on coast fishery vessels, complying, because of the size of their crews, to the regulations of the new ordinance.

The existence of positions offered them beside the fishermen of the French Shore did not fail, at first, to arouse among the young doctors of the maritime regions a certain attraction. Recruitment was easy, and about 1840 there were around 100 doctors sailing each year to Newfoundland.

Later, these newcomers to this rude existence became more rare; the number of doctors in Newfoundland diminished by the progressive decline of applications for this function, and the administration was forced to yield to the situation by allowing the shipping of only one doctor for each group of vessels fishing in the same region. Thus by 1872, the medical service on the two coasts of the French Shore was entrusted to ten so-called surgeons, only one of whom had a diploma. The others were simply medical students, secured by inscription, who had abandoned their studies, some temporarily, some permanently.

Administratively, medical service was thus assured to all the coast in a minimum, but theoretically effective, measure. Practically this existed

only for those bays which had a doctor in residence; for, when all hands were engaged in fishing, cutting and drying cod, it was almost impossible for these modest practitioners to obtain from the captains means of transport from one bay to another. In these circumstances, their principal pre-occupation was to use their leisure left from their reduced obligations from professional duties to make some money to supplement the meagre stipend allotted them, and they devised many "sidelines". One of them, who practiced on the French Shore for many years, fished, with great skill, for lobsters and canned them.

The Newfoundland doctors rendered, nevertheless, important services. One cites the devotion to duty of one of them, during a typhoid epidemic, who did not hesitate to isolate himself with the sick sheltered under a turned-over long-boat and restored all of them to health.

Later it became impossible to maintain this modest supply of ten doctors. In the absence of new applicants, the administration had to resign itself, in 1886, to admit the impossibility of enforcing the regulation. Two old Newfoundland doctors were assigned the practice, one on the east coast, one on the west. Both gave up their duties in 1901. Thus ended a long line of modest medical practitioners who ameliorated the rude existence of the cod fishermen, eased their suffering, and brought to their service, in default of high medical science, a good practical sense which made them truly beneficial.

Before the disappearance of the last representatives of the medical corps on the cod vessels, all the captains of the bank vessels and the greater part of the vessels outfitted for the French Shore saw themselves called, by virtue of the regulation, to substitute personally for the absence of a doctor aboard. They were guided, in the exercise of this function, strange to their professional training, by very elementary principles of hygiene and medicine that they received at the School of Hydrography, and still more by the contents of a thin, but substantial brochure which accompanied, compulsorily, the contents of the medicine chest: "Medical Instructions". More or less faithful interpretation of the instructions and prescriptions of this manual determined the care given the sick. For the mariners who mastered briefly and logically these things, this supplement to high seas navigational knowledge, which perpetuates itself on all the vessels of all fleets of the world not supplied with doctors, constituted the regime of "book medicine".

During many years, but especially at the resumption of outfitting for the great fishery at the beginning of the Restoration, the recruitment of captains was about as difficult as that of doctors.

The old regulations had imposed on outfitters the obligation of entrusting the command of their boats only to captains of the high seas. Now the amount of instruction which was required of the latter for obtaining their papers exceeded considerably that one found among the professional sailors in the fishery. As a consequence, captains had to be hired outside this source, a solution which did not satisfy the outfitters, since they demanded of the commanders of their vessels not only the ability to navigate to the fishing grounds and to get back safely to port at the end of the season, but also, to possess enough practical knowledge of the fishery and the processing of their product to act as true chiefs of these expeditions, capable of making the best profit from their capital investment in the vessel entrusted to them.

In the absence of these professional qualifications, the outfitter was almost always led to supplement the captain by a "fishing skipper" (*patron de peche*), a simple fisherman having authority and experience to whom could be entrusted under his proper responsibility, exclusive supervision of the fishing operations. Thus the captain found himself, on arrival at the coast of Newfoundland or to the banks, practically divested of his authority.

From this duality of command many conflicts resulted, discipline suffered and frequently also the execution of the fishery. The high seas captains were reluctant to accept this subordination, especially since the supplementary remuneration of the fishing skipper was often made at their expense. There resulted difficulties of recruitment which, in the 18th century, aroused incessant complaints from the outfitters.

These latter demanded that the command of the vessels of the great fishery be entrusted to coastal skippers, subjected, in obtaining their papers, to the same conditions of navigational knowledge as the high seas captains, but with a program of theoretical information considerably lightened. This commission would be within the reach of the better-instructed fishermen, and one could admit that they possessed sufficient knowledge to conduct a boat to Newfoundland, following a route which they had made from a youthful age.

At the resumption of outfitting in the 19th century, the recruitment of a sufficient number of high seas captains had become practically impossible. The outfitters multiplied their grievances.

The minister did not immediately yield to their reasons and allowed, at first, exceptions to the regulation only for those outfitters whose vessels found themselves in a situation where they could not put to sea for lack of a captain. But in the following years, these exceptions having become more and more numerous, with a tendency to become the general rule, the controversy finally had to be resolved to the benefit of the outfitters. The law of June 21, 1836, authorized coastal skippers to command all vessels outfitted for the cod fishery, as well as for the Newfoundland banks.

It was forbidden them, however, to command vessels during this period engaged in the important traffic of exporting dried cod from Saint-Pierre to the Antilles, as well as to take, on departure from France, a load of freight to the fishing places.

Finally, the establishment of the new commissions of captain of the fishery and captain of the merchant marine conferred on their holders the same prerogatives for commanding vessels in the great fishery. The fishing skippers, embarking as a kind of super-cargo as men in the confidence of the outfitters, continued to sail on the greater number of vessels. It was only in the 20th century, with the entry on the scene of the steam trawlers commanded by captains more and more specialized in the practice of this new scientific fishery, that one saw the progressive disappearance of this function.

The loyalty and firmness with which the British government enforced, in the years which followed the resumption of fishing on the French Shore, the rights of the French fishermen, was not appreciated by the inhabitants of Newfoundland, and it could not be otherwise, since the islanders, after twenty-five years of a monopoly in fact, saw once again imposed on themselves a servitude which had been for them a distant memory, and which they had believed themselves free from forever.

The freedom of the fishery about the island was not the only question. In Newfoundland as in the other British possessions, the continental blockade had had as a consequence an attempt to develop all the local resources which could come to the aid of the mother country. Some important mineral and forest exploitations had been created, with, as a result, in this country without communications, the opening of maritime outlets as close as possible to the centers of production. Thus the restrictions which held on the French Shore to the profit of the French fishermen, carried an undeniable embarrassment, although somewhat less than was pretended at St. John's, to the development

in this region of the principal local industries. A very exclusive national sentiment prevailed more and more among the islanders not to submit without resistance to this restriction of their sovereignty.

Under cover of the tolerance that the French fishermen accorded to certain Newfoundland families rendering them services in supplying or guarding their establishments during winter, infiltration was carried on deliberately. At the same time, the St. John's authorities regarded with favor the flood of grievances which they were pressed to transmit to London, complacently amplified.

The British government could not uphold openly the complaints of the islanders by encouraging a direct action taken in violation of the treaties. It was in the interpretation of the texts that it sought a means of giving them satisfaction. They returned to the old judicial quarrel of a concurrent fishery opposed to an exclusive fishery, and it was on this theme that laborious negotiations were begun between France and England, the first represented by Talleyrand, the second by Lord Palmerton.

The controversy was somewhat embarrassing for the government at London which, in the preceding years, had agreed, in very good faith, to the French interpretation. In 1835, Palmerton decided to take recourse in the judgment of three British jurists of high competence, Dordons, Campbell and Rolfe. Their advice was categorical: "After having taken note of the treaties, we think that the French subjects have an exclusive right of fishery on the parts of the coast of Newfoundland specified in the fifth article of the treaty signed at Versailles September 3, 1793."

Instead of admitting a check, the minister invited the three jurists to "re-examine the question more deeply."

Although showing themselves somewhat less affirmative, the advice which was reported in 1837 at the end of this second examination was, basically, still in favor of the French claim: "There is no doubt from the treaties," concluded the jurists, "that the French fishermen have a right to an exclusive fishery. These rights are always defined in precise terms, formal and comprehensible. But the right to fish which the French have is such that no one can share it with them from the moment that they are hindered." Now the French negotiators considered as formally established that a common fishery could not be practiced, in the conditions that existed in Newfoundland, without being a source of hinderment for both parties.

It was this that the Newfoundlanders absolutely refused to accept. They claimed in principle that the installation on the French Shore of new permanent colonies could be made in conditions not affecting the French fishery, and they prevailed henceforth in this unilateral affirmation to attempt to establish their claims on the basis of the opinion of the crown jurists. It resulted that, all in pretending to save the French rights, the British Cabinet began at this time to accord the islanders concessions of land on a part of the coast expressly reserved to the French fishery.

The French government should have acted in a forceful way and expelled without delay these new colonists. The policy of Louis-Phillipe resolved, in these years of dangerous diplomatic tension, to maintain peace at all cost and was opposed to this. It was then by means of negotiations that one sought to work out the difference.

Because she was agreeable to negotiations, France abandoned the claim of an exclusive fishery that she had always upheld to then.

Three successive commissions, named in 1844, 1846 and 1851, attempted to work out the basis of agreement for an honorable transaction. Tired of war, the negotiations ended with the convention of January 14, 1857, in which the principal provisions were as follows:

"From Cape Saint-Jean to Cape Normand and in five harbors of the west coast, the French will have the right of exclusive fishery and the use of the shore for the needs of the fishery during the season specified in Article 8 (from April 5 to October 5 of each year).

"The English subjects have the right, concurrently with the French subjects, to fish on the east coast of Newfoundland from Cape Normand to Cape Raye, except in the five harbors reserved to the French fishery, but the French subjects have exclusive use of the shore for the needs of the fishery from Cape Normand to Point Rock.

"From Cape Rock to Cape Raye, Great Britain has exclusively and without restriction, use of the shore, except in those five harbors reserved to the French fishery which are included in this zone."

Thus France accepted, by this new arrangement of the west coast fishery, renunciation, to the benefit of the islanders, of the rights she had held by treaties. It is true that, in practice, the French fishermen had not used the parts of the coast which were henceforth freed from her monopoly.

The convention carried, besides, in Article 5, the following clause:
"The French subjects have the right to buy bait, herring, and capelin on all the south coast of Newfoundland including the French islands of St. Pierre and Miquelon, at sea or on land, on the same basis as English subjects, without Great Britain or the colony imposing on French or English subjects any kind of restriction on this transaction or on the exploitation of said bait."

This clause concerned especially the bank fishermen, for, at this epoch, the coast fishermen had practically abandoned everywhere the line fishery to fish only with the seine. It was very important for the former, for, for a long time, the bank fishermen had been depending on provisioning with bait at Newfoundland, especially for herring which were caught only in small amount at St. Pierre and Miquelon. Until then these purchases of bait could be made only on the west coast, especially at Saint George Bay where an important fishery was carried on, for the local administration devised all sorts of obstacles to these transactions outside the limits of the French Shore. They could then expect to draw a considerable advantage from this freedom to buy bait on all the southern coast of the island, where the herring fishery was very actively practiced.

But the negotiators of the convention, as well as the two signatory governments, had not counted on the reaction which it would excite locally.

During the negotiations, Newfoundland had received the status of a Dominion. Since 1856, the island had its own government, as well as its Parliament to which the convention would have to be submitted. Now, hardly had the treaty become known in the island than it aroused a riot. At St. John's seditious cries were raised against the queen. The British flag was attached to the tail of a horse and dragged, in this humiliating way, through the streets of the city. There was even, among a majority of the islanders, a threat to abandon England and to join the United States. Finally the Parliament of Newfoundland refused to vote the sanctions which would render the treaty effective. Under these conditions, the former difficulties, far from being resolved, were only multiplied.

France did not concern itself with the opposition of the Newfoundland Parliament. It was, after all, a question of British internal order, and it was the responsibility of England to settle this eventuality in honoring its agreements. The French government did not fail to make known this point of view, but the orientation of Franco-British politics at the moment did not lead to insistence to obtain the immediate execution of the agreement, and so new negotiations were undertaken.

These latter were undertaken by the commissions which met in 1859, 1866, 1867 and 1880; but the French government being able to accept only the prerogatives included in the treaties to the benefit of its nationals, these conferences could only end with an affirmation to maintain the rights of the French fishery; a conclusion that the government at St. John's received each time with anti-French demonstrations and even anti-British.

An official place having been made for Newfoundland delegates among the negotiators, they succeeded finally in agreeing on a precise text. It noted the agreement of April 14, 1884, which was modified, November 14, 1885, in a manner favoring the grievances of the islanders. It carried the following stipulation:

"The British government agrees to conform to the following terms to assure the French fishermen, in execution of the treaties in force and particularly the declaration of 1783, the freedom to exercise their industry on the coasts of Newfoundland without hinderance or obstacles of any kind on the part of the British subjects.

"The French government agrees not to raise any protest against building by the British of establishments on land under their jurisdiction necessary to the development of all industry other than the fishery on the parts of the coast of Newfoundland between Cape Saint-Jean and Cape Raye."

"The French will maintain their full right to fish, dry and prepare fish on all parts of the coast between Cape Saint-Jean and Cape Rouge, as is defined by the treaties."

The arrangement thus brought about could be considered as giving satisfaction to both parties, since, confirming the priority of the rights of the French fishermen to exercise their profession, it took cognizance of the necessity of industrial development of the island in facilitating, in particular, access to the sea for exportation of its mineral and forest resources.

Once again the intransigence of the islanders overruled the efforts of the diplomats.

In order to go into effect, the convention had to be approved by the Newfoundland Parliament. The government of St. John's whose delegates had participated in the negotiations was determined to obtain ratification. It failed to receive a vote of confidence and was put out of office. The conservative

government which succeeded it was not content with this negative attitude. In May, 1886, it enacted the famous "Bait Bill" which forbid the inhabitants of Newfoundland to sell bait of any kind to foreigners.

This drastic measure was aimed at the annihilation of the French cod fishery in Newfoundland waters, on the banks as well as on the shore. It was especially directed at the bank fishery, much the more important at this period. The Coast fishermen had by then practically abandoned the line fishery, fishing only with nets. The coast fishermen then had no need for bait, with which they were, moreover, able to supply themselves. For the bank fishermen, on the contrary, the ban on provisioning with bait from the islanders was a threat of the greatest gravity.

But the French fishery could parry the mortal blow that the Parliament at St. John's hoped to give it by adopting the bulot for baiting the trawls. It was then useless to put into force a bill which would cause a loss of 600,000 francs a year to the Newfoundland fishermen, and for which the Newfoundland government would have to appropriate in its budget some 60,000 francs for the surveillance of its coasts.

At the same period the French shore fishery gave rise to new conflict in which the fishing industry and the canning of lobsters furnished a pretext. The lobster abounds in the coastal waters of Newfoundland, especially on the west coast. For many years, its canning, inaugurated by the Newfoundland fishermen, supplied an important income to the French engaged in the coastal fishery. For a long time the coastal fishery had been declining while the bank fishery continued to increase. In addition to the hostility of the islanders, the principal reason was that the coastal fishery, with the double crews needed for the long drying process on the beaches, presented commercially, less and less profit compared to the banks because of the development of artificial drying of green-salted cod at the home ports, which was much more economical.

The young industry of lobster fishing lent a new interest to the coastal fishery. The St. Pierre and metropolitan outfitters for the coast employed a progressively more important part of their crews in this fishery and in the canning of lobsters, and the French products were much better than the English which were in general less well prepared.

The adaptation to these new working conditions had been very simple. The crews, slightly reinforced, were divided into squads. One group fished for lobsters with traps fabricated during the crossing. The other group fished

for cod, the heads serving as lobster bait, the body being dried in the usual way. A few men were employed in preparing the lobster, cooking it and soldering the cans. Two fishermen were used per boat. They could easily put out, watch, haul, and rebait two hundred traps per day. Ten boats, usually dories, were thus fishing for each vessel. Each of them caught on an average, 350 lobsters per day.

Now, at the same time of the Bait-Bill, the Newfoundland authorities began to oppose the French exploitation of the lobster fishery.

In one particular case, they had some cause. In this same year, 1886, one French outfitter, M. Lemoine, built at the island of St. Jean a lobster establishment. The latter was made of wood but the boiler for cooking the lobsters involved the construction of a brick chimney. No further pretext was needed to motivate a protest to London by the Newfoundland government that a structure of permanent character had been created on the French Shore, in violation of the treaties. The French government had to yield. Mr. Lemoine had to tear down the brick chimney. He replaced it with a moveable sheet iron chimney, and continued his exploitation in the following seasons.

In revenge, the French government gave strict orders to the commander of the naval station that any violations of the French Shore would not be tolerated in the future. It even demanded the closing of many Newfoundland lobster establishments, in particular that which had been established by a Mr. Shearn in the bay of Igornachoix.

The British Foreign Office responded to this by demanding the closing of French lobster establishments, under the pretext that the treaties did not authorize the French fishermen to practice any other industry than those connected with the catching and drying of cod.

Against this pretension, the French jurists recalled the original text, in Latin, of the Treaty of Utrecht:

"Subditis gallicis piscaturam exercire et pisces in terra excicarre permissum erit."

The right of fishing and the right of drying were there carefully separated, and there was no question of limiting the first of these rights to cod alone. It was then evident that the right of all kinds of fishing was accorded the French.

Debating this point, those holding to the British thesis claimed that the right to take all kinds of fish was indisputable but that it could not apply to the lobster which was a crustacean and not a fish and which, moreover, was not fished for but trapped!

The French jurists were not at loss to find a reply to these new arguments. They stated to their British colleagues that the natural history treaties of the period of the treaty of Utrecht ranked the lobster, as well as the crawfish and the shrimp, in the category of fishes, qualifying them as "fish with a shell", and that, furthermore, the official English translation of the treaty of Utrecht used the term "catch" for "piscaturam exercire" and that "to catch" was the same as saying "to trap."

The English casuistry then sought refuge behind a last intrenchment. The treaties, claimed the English, did not allow the French fishermen to build on the shore of Newfoundland "any habitation of any kind, except wharfs and cabins necessary and useful for drying fish..." En consequence, they argued at London, it was forbidden them to build buildings intended for cooking and canning lobsters.

It was easy to reply that such buildings were not dwellings and that the words "docks", "cabins", and "drying" were used only as examples, without any intention on the part of the negotiators to impose such limitations. The sole condition to which the French were indisputably held was that the character of their installations be temporary.

It was, however, without great conviction that the government at London engaged in similar chicanery. In this affair, which seemed insoluble, it was necessary to remember the attitude of the islanders against the text of the treaties. But it could not follow the government at St. John's in an action which openly violated the treaty. Thus it found itself, in 1892, obliged to demand the Dominion to respect the pledges and to demand that the Parliament vote the bill by coercion.

The adoption of the bill broke the resistance of the local authorities but did not calm the people. Resentment increased on the island year after year. Between the islanders and the French fishermen, the situation became dangerously tense; at any moment one feared an incident likely to lead to complications of the utmost gravity in Franco-British relations.

On the other hand, it was evident that the fishery on the French Shore was declining more and more rapidly while the bank fishery was prospering. In 1894, only 15 vessels outfitted for the coast fishery; by 1904 it was reduced to six. Under these conditions it became difficult, in strict fairness, to forbid the Newfoundlanders, in the name of an exclusive fishery, the use of some of the 60 fishing places reserved to the French by virtue of the text of the treaties, of which only a very few were being used.

In this situation, the two governments, rather than engaging in endless sterile discussion without any possible agreement, wished to take advantage of this occasion permitting them to settle, once and for all, in the interests of both parties, the thorny question of the French Shore.

This occasion came about at the beginning of the 20th century, and negotiations were undertaken resulting in the signing, under the entente cordiale, of the convention of April 8, 1904, by which France renounced its ancient rights on the French Shore in exchange for the ceding of the Los islands, near Konakry, some slight rectification of the frontiers to the advantage of its colonies in west and equatorial Africa, certain unimportant concessions concerning jurisdiction in litigations in Siam, Madagascar, and the New Hebrides, and also freedom of action in Morocco.

The articles of this convention applying to Newfoundland are as follows:

Article 1. France renounces the privilege established for her profit by article 3 of the Treaty of Utrecht and confirmed and modified by later dispositions.

Article 2. France reserves for its jurisdiction, on an equal footing with the British subjects, fishery rights in the territorial waters on the part of the coast of Newfoundland between Cape Saint-Jean and Cape Raye. This right will be exercised during the customary fishing season ending for everyone October 20 of each year.

"The French will be able then to catch all species of fish, bait as well as crustaceans. They will be able to enter all ports and harbors of this coast to procure provisions or bait and to take shelter under the same conditions as the inhabitants of Newfoundland, staying under the local regulations in force; they will also be able to fish at the mouths of rivers, without, however, passing beyond a right line drawn from one to the other of the extreme points

of the banks between which the river runs into the sea. They will abstain from using fixed fishing gear without permission of the local authorities.

On the part of the coast mentioned above, the English and the French will be on equal footing to the laws and rules actually in force or which will be drawn up later for the prohibition, during a fixed time, of fishing for certain fish, or for conserving the fisheries. There will be given notice, to the government of France of new laws and regulations three months before the time they are to be applied.

"The policing of the fishery on the above-mentioned part of the coast as well as that of illegal traffic in liquors and contreband alcohols, will be the object of regulations established between the two governments."

Article 3 stipulated that "a pecuniary indemnity will be allowed by the government of his Britannic Majesty to French citizens engaged in the fishery or in the preparation of fish on the Treaty Shore, who may be obliged, either to abandon the establishments they possess or to give up their businesses in conforming to the modifications brought about by the present Convention" and that "this indemnity can be claimed only by those engaged in the fishery before the fishing season of 1903."

Thus the regime of the "Treaty Shore" was substituted for that of the French Shore. The essential differences were that the French lost, without possible dispute, the right of monopoly on the part of the Newfoundland coast made the object of treaties and conventions and that, if their right to fish was maintained, it was on an equal footing with the inhabitants of Newfoundland, and on condition of conforming to the rules set up by the local authorities; moreover, all establishments on the coast, even temporary, were forever forbidden them.

The convention of 1904 put an end, then, to the old French industry of drying cod on the coast of Newfoundland. But it was not, in reality, a great sacrifice, since in the years which preceded the signing of the convention, the occasional outfittings which were made were only for the object of fishing for and preparing lobsters. If one can imagine, in 1904, that by reason of unforeseeable circumstances of technical and economic advance, France thought some day to regret having abandoned her rights to all temporary occupation of a part of the coast of Newfoundland, the progressive disappearance in the following years of the sailing vessels of the great fishery before the steam and

motor trawlers which made obsolete the old procedures of drying, let there remain no doubt in this regard. It would be vain to waste regrets on the loss of a privilege fulfilling needs which are today non-existent.

But except for drying, the right to fish remained, on an equal footing with British subjects, for the lobsters as well as for other fish. In particular, nothing prevented the French bank fishermen from provisioning with bait on the Treaty Shore, either buying it from local fishermen or capturing it themselves, after presenting the license, possession of which was required of them.

In practice, for the coast as well as the bait fishery, the French fishermen did not take advantage of the rights accorded them on the Treaty Shore. The last campaign to the Treaty Shore was made by the three-masted President from Saint Malo in 1908. The colonial fishery was represented in the same year by three two-masted schooners and some wherrys from Saint Pierre, fishing for bait in the neighborhood of Cape Raye.

Deprived of their shore establishments, the French lobster industry, which had acquired in the recent epoch an undeniable prosperity, could no longer exercise the conditions from which it had profited prior to the convention. It became the object, on the part of the British government, of the agreed-upon indemnities, and was abandoned. Nothing prevented, however, that which was continued, with a change which consisted of doing all the cooking and canning on board a fishing vessel instead of performing these operations on land. The installation of a simple workshop sufficed, without question of complicated mechanisms and a veritable factory ship. The boat thus equipped, anchored in a bay of the Treaty Shore, sent out its dories to catch lobsters and proceeded, in the same manner as a shore establishment, to its canning, as well as green-salting cod and using the heads to bait the lobster traps.

At present, no outfitting of this kind is attempted; under the regime of the Treaty Shore, the French fishermen no longer appear at Newfoundland. The first years of the 20th century have seen the extinction of the very old tradition of a French fishery on this coast.

Chapter VI. Sailing Vessels on the Banks

The beginning of the Restoration marked, with the resumption of cod fishing, a renovation of the procedures of bank fishing. Fishermen and outfitters had not forgotten the surprising results obtained by Captain Sabot and his imitators at the dawn of the Revolution in substituting the line trawl for the hand line. The Maritime Administration had remembered equally well. But, while the former saw in this innovation the means of augmenting their gain considerably, the latter considered it from the less encouraging viewpoint of the danger to which it exposed the men in the long-boats in setting and handling the lines, a new risk that, since the distant origin of their industry, the bank fishermen had never run. Also it was judged well to maintain the ban on the new procedure which had immediately followed the first trials by Captain Sabot.

Once again, the ruling found itself in default before the general acceptance of the new method, less tiring for the fishermen and at the same time assuring them, by its very superior catch compared to the handline, a very important profit.

One saw the vessels outfitted for the bank fishery sail with all the old equipment for handline fishing and, in reality, many of them limited themselves for many years to the old practice of drift fishing, with the sole difference that the old outboard platforms had practically disappeared everywhere, the fishermen lining up at the side of the vessel, each installed on a small wooden rectangular platform.

But, aside from these, other vessels practiced, from the first campaigns in 1815, the line trawl fishery and, in the following years, they rapidly became the majority, the captains fabricating, once at sea, line trawls by tying hand lines end to end.

Moreover, the outfitters had furnished their vessels with the long-boats necessary for this kind of fishery, no one being able to prevent this. The vessels, square-rigged two-masters or latin- and square-rigged two-masters of 100-150 tons for the most part, carried two large long-boats, one of which served as a spare, and a small boat which was called the "portmanteau (davit boat) because, while the long-boats remained in the water while in service, they raised the "portmanteau" to the deck each evening.

The crew of the long-boat generally comprised 5 men and an apprentice-seaman; that of the portmanteau, 4 men and a ship's boy. On anchoring on

the bank, the long-boat ran out on the starboard 35 pieces of line of 60 fathoms each; on the port, 25 pieces were set by the small boat. The lines were set out for the night at dusk and hauled at dawn. When the catch was good, after the morning haul and landing the cod aboard, spare lines were set out for some hours during the day.

After some years, the line trawl fishing was established aboard all the French cod vessels. Rather than try to enforce a ban about which no one worried, the Marine Administration resigned itself to tolerating that which it could not prevent under cover of a new regulation which concerned safety measures to be taken by the men in the long-boats or other boats set out from the fishing vessel for setting and hauling the lines.

By a circular of January 30, 1821 to the maritime authorities in the ports, inspired by a report from the commandant and "Administrator for the King" of the islands of Saint-Pierre and Miquelon, Baron Portal, then Minister of the Marine, prescribed the use of a special line, made for the purpose, of a nature to constantly hold the long-boats to the vessel to assure them the certainty of being able to return in case of a storm. He recommended, at the same time, under the title of a supplementary precaution, the use of small cannon for giving, in times of fog or storm, a rallying signal for the boats still at sea. These were wise precautions, justified by the loss of many boats with their crews. The report addressed to the minister cited the long-boat of the two-master Auguste, of Nantes, Captain Gourdan, which had disappeared in a storm the preceding season, in 1820.

Still these rules of prudence were ignored, in their turn, before the necessities of the fishery, for, little by little, the long-boats began to go so far from the vessels that it became impractical to keep between them and the vessel a line of security. The fishermen had, as a matter of fact, noted that the waste of all sorts thrown into the sea from the vessel at anchor drove away the cod and attracted at the same time dogfish and Greenland sharks. As long as the vessel stayed at the same anchorage, the long-boats were obliged to go farther and farther to set their lines, and beyond a certain distance, to abandon all material liaison with the vessel. Finally, as this departure was evidently less dangerous for small than for great distances, the measure of prudence pronounced in 1821 by Baron Portal was completely and definitely disregarded.

During the same period the portmanteau was abandoned as a fishing boat, the setting and hauling being done by two identical long-boats, equipped with

the same number of men. However, even in these conditions, the lengths of lines set from the two sides of the vessels remained unequal for a period of 15 years, the starboard long-boat setting a total of 40 lengths, while only 30 pieces were allotted to the port long-boat.

This routine was not for nothing. It was a consequence of a very particular regime of winds and currents on the Newfoundland Banks. In effect, it generally happens that the wind, which is southwest at the first hour, changes to west during the following hours in a manner such that, the vessel being held by the current, the half circle of the port horizon falls in the lee while the half circle on the starboard, on the contrary, is into the wind. As a result, the return of the port long-boat with its load of fish is longer and more difficult than that of the starboard long-boat, which justifies the unequal division of the lines. However, in order to obtain an equal distribution of work during the season, each Sunday the crews of the long-boats were exchanged from one side to the other, so that the men worked alternately eight days on the port and eight days on the starboard.

This alternation had besides another motive, for if the port fishing was more tiring than the starboard, the latter has always been considered more dangerous because all fishermen on the banks know from experience that, by a phenomenon resulting, without doubt, from the position of the vessel between wind and current, at the end of the day at the time of hauling the lines, the fog-horn and cannon are heard less well to the starboard, the windward side, than to the port, the leeward side. As a result, at the same distance from the vessel, the boats operating to the starboard risk much more, in case of a sudden fog, of not hearing the signal which is their only guide to the ship, and missing it often means death for the crews on the immensity of the banks. Also, the crew of a boat finding itself in such a situation on the starboard guides itself by the wind or the waves and, sometimes, by a small compass which regulations require on all long-boats or dories, to a direction a little closer toward the vessel in a manner, if they do not chance to see it, to pass to the port, after which their chances of hearing the fog-horn or gun are very much improved.

Later, the use of long-boats in the fishery underwent some modifications. After 1835, each vessel shipped three long-boats, one a replacement. At about the same time the lengths of lines fished to starboard and port became equal, each composed of 75 pieces of 60 fathoms. The more difficult fishing on the port side was compensated for by weekly alternation of the crews. In 1871, the trawls attained their maximum length of 90 pieces of 60-fathom

line. The size of the long-boat was augmented in proportion and its crew increased from 5 to 7 men.

In 1875, the French fishery first tried to replace the heavy and cumbersome long-boats by dories, light boats of American invention, which had been used for a long time by the American sailors.

Very stable and sea-worthy in spite of their flat bottom, the dories, manned by two men and sometimes, as by the Portuguese, by one man, are so light that one can easily load them, each night, on the deck. Piled one on another, they present a minimum encumbrance in the operation of the cod vessel.

The results were so conclusive that after a few years all the French vessels were equipped with dories. This brought about a marked change in the fishery. The trawls became shorter, but as they were now much more numerous, the catching capacity of each vessel was increased considerably.

During the same period, innovations in materials used in fishing contributed to another increase in the yield. The old French silver-plated iron hooks were replaced by steel hooks of English, Norwegian, or French manufacture. The substitution of cotton for hemp in making the line trawls resulted in lighter lines of equal strength.

During the period of the 19th century which followed the adoption of line trawl fishing by the French, fishing techniques benefitted from other important improvements in equipment and rigging of the vessels.

Following the practice of Captain Sabot, the outfitters had to supply their vessels with strong hempen anchor cables, long enough to permit them to anchor on the banks with good holding conditions, that is to say, a length of cable two to three times the depth.

To avoid, or at least diminish, the wear of the cables through the hawseholes, the openings of these were improved and provided with a lead collar. At the same time the old capstan, which had become an engine of torture in the new way of fishing, was progressively improved and modified and finally replaced, on most of the Newfoundland vessels, by a motor winch.

In spite of all precautions to insure the preservation of the hempen anchor cable, it deteriorated rapidly and had, besides, the fault of being very

cumbersome. In order to diminish the diameter without losing strength, some outfitters tried, about 1842, a mixed cable, made partly of hemp and partly of metal. Satisfied with the result, the Fecamp outfitters adopted in 1848 the iron anchor chain, the use of this becoming general in the following years on cod vessels as well as other ships, with the adaptation on the capstan of a toothed drum around which the anchor chain rolled without any possibility of slipping, each of the links engaging exactly.

Many of the modern American and Canadian schooners still used during the 20th century in the bank fishery, the hemp anchor cable which holds the great advantage, in anchoring in all weather, of great elasticity. These vessels, making only short trips, can accomodate the cumbersome hemp cables, which are coiled on each side of the deck.

At about the same time, the three-masted rigging which succeeded the two-masters in the Newfoundland fishery benefitted from many successive transformations, the most important result of which was the replacement of the main topsails, difficult and dangerous to furl in bad weather, by double topsails. Also the iron cable, then steel, replaced hemp for many uses. The mainstays and shrouds in particular became metal. So, aside from the adoption of dories, the fishing technique of the sailing vessels remained about the same, the various improvements in equipment of the vessels permitting an increased yield for an equal number of men.

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Since the general adoption of trawl fishing, from about 1815, the pursuit of the cod fishery by vessels from France was affected by two primary factors: the bait question and the tonnage of the vessels.

In the first years of this new fishery, outfitters and captains paid little attention to the quality of bait used. They continued to use, as during the three centuries of hand line fishing, the same diversity of bait: salted herring and mackerel from France, then, after exhausting this small supply, heads and entrails of cod, sometimes sea birds, and occasionally squid.

But the captains soon realized that the enormous improvement in the yield which came from substituting the trawls for the hand line still left a margin important to progress as far as bait was concerned; for the cod, in spite of its legendary voracity, nevertheless had preferences.

They soon learned that the best baits they could obtain were fresh or lightly-salted herring, plentiful during the spring fishing season on the coasts of Newfoundland, the capelin, whose massed schools appeared on the shores of Newfoundland and Saint-Pierre and Miquelon in June, and the squid, the most efficacious bait, which appeared on the banks in July and intermittently until September.

On the other hand, until the last years of the 19th century, the tonnage of the cod vessels did not permit them to stow in the holds, for the return to France, all the fish captured in the course of an average season. It was necessary then to arrange an intermediary port of unloading.

It was these two necessities, loading bait and unloading the first fish caught which, for three-quarters of a century, made the port of Saint-Pierre an indispensable base for the cod fishery.

Leaving their ports of outfitting during the first days of March, the bank vessels touched first at Bordeaux or Lisbon to load salt, then sailed for Saint-Pierre. With the development of outfitting at Saint-Pierre, the custom increased of taking as passengers on the vessels of the metropolitan fleet of the great fishery, in conditions the least comfortable and hygienic, crews destined for the vessels at Saint-Pierre which outfitted locally for the French Shore and the banks.

At Saint-Pierre, the captains bought the herring which would be the bait for the first of the fishery and which was brought from the Newfoundland coast, particularly from Fortune and Plaisance Bays, by small boats called "galopers." As soon as provisioned, the vessels left for the banks.

The first fishery ended in June. The vessels rallied at Saint-Pierre where they unloaded the green-salted cod. This, which was prime cod, was immediately loaded on ocean-going sailing vessels, the "chasseurs", which made delivery to France or the Antilles.

Capelin, the bait for the second fishery, was bought during the course of this unloading. It came, for the most part, from Newfoundland, but not, like the herring, entirely; for the capelin fishery, requiring for gear only a light seine, is also practiced on the shores of Saint-Pierre and Miquelon, so that a part of the supply could be obtained from the local fishery. Some captains,

finding themselves at Saint-Pierre at the time of the capelin run, caught their supply directly, fishing with their own crews.

The squid was, from July, the bait for the third fishery, which succeeded the second with or without unloading at Saint-Pierre. The captains sometimes got this bait at port if the occasion permitted; but, as a general rule, it was on the banks, while fishing, that this cephalopod was caught.

During a run of squid, pursuing fiercely schools of the migratory fish on which they feed, in ranks sometimes so close that the sea appears rose-tinted all the available men jumped to the squid gear. This was a small piece of lead barbed with steel hooks. No bait was necessary; it sufficed to paint the lead red or to nickel-plate it in order for the squid to take it and become hooked. This fishing was sometimes done aboard the vessel, the men lining up along the rail and throwing their gear in the water, tying sometimes two or three lures on the same line. More often, the fishermen went out in their dories which, during the day, were tied alongside.

The squid is a fleeting prey, for its passages are brief, and it is rare when one can capture even on the best days enough to bait all the lines. Thus no opportunity to get them was ever lost by the fishermen.

At the end of the fishery, in October, most of the boats stopped at Saint-Pierre. They sometimes left there, when the market was right, a part of their catch, generally destined for the Antilles. They made their arrangements for the crossing, often unloading their fishing gear to be picked up at the beginning of the next season, and taking on returning passengers. They sailed for the cod ports, Bordeaux for most, Port-au-Bouc for the rest, and then on to their ports of outfitting.

The Bait-Bill, voted in 1886 by the Newfoundland Parliament, had consequences the most important and unforeseen for the bank fishing.

The authors of the bill had counted on its adoption dealing a mortal blow to the French fishery on the Newfoundland banks, thus obtaining a major advantage for the principal industry of their island.

In fact, concern was great among the French fishermen. Losing means of obtaining herring, the only bait for the first fishery, it seemed likely, if not condemning their industry to ruin, to at least gravely affect it in obliging

them to delay for many months the opening of the fishery. No bank vessels were equipped to capture herring, the right to fish for which on the French Shore still remained. Such an enterprise would involve enormous cost as well as the loss of considerable time.

Facing the obligation of returning to outdated baits, heads and entrails of cod which gave a mediocre yield, it seemed the French metropolitan fishery would be obliged to abandon the waters of Newfoundland.

The solution to this problem came so quickly that the only victims of the Bait-Bill were the Newfoundland fishermen themselves who found themselves deprived of an important source of income. It was the Fecamp fishermen, who, seeking for many years a way to beat the high price of bait as well as the regular unloading at Saint-Pierre, had the idea of baiting the lines with Buccinus undulatum, a large periwinkle well-known on the Channel and Atlantic coasts of France. The fishermen of Newfoundland called it the "bulot". It was also called the "grand vignot" (big periwinkle) or "coucou".

Buccinus is found everywhere on the Grand Banks; it abounds in certain areas, notably on the southeast part of the Grand Banks, which is, at the beginning of the fishing season, more or less the center of activities for the line trawlers. In spite of its preference for squid, herring, and capelin, the cod does not disdain the tough flesh of Buccinus which has moreover, the advantage of hooking the cod firmly. If it is not the best bait, it is the most precious for, in the areas where it is found, one can fish all season and capture it easily. Buccinus was known all the time by the Newfoundland fishermen, who used it at times when their bait supply was low; but never, except for the happy initiative of the Fecamp fishermen, provoked by the hardships of the Bait-Bill, would they have thought to make general use of it as they did the squid which they also caught at the place of the fishery during its occasional appearances.

Use of Buccinus presented, however, a serious inconvenience owing to the necessity of breaking the very hard shell at the time of baiting the lines. This operation was done, at first, with the aid of a wooden mallet; but besides the time it took, it presented a serious danger to the fishermen because fragments of shell could hit them and cause wounds subject to infection.

Attempts to use crushing mills had mediocre results because of the great variation in size.

The best and simplest solution was to crush the shells with the shoes but this was not without inconvenience. The shells and debris collected on the deck, which was only rarely cleaned, and the deck was soon covered with a layer of broken shell with sharp edges which damaged it rapidly. Scattered in all parts of the ship by the boots of the fishermen, the decomposing debris gives off an offensive odor and became a source of pestilence. Finally, the broken fragments of shell adhering to the flesh of the mollusk frequently wound the men baiting the hooks and are the origin, with hooks infected by rotten bait, of the numerous sores which are one of the scourges of the banks.

Fishing maps drawn up for the use of vessels on the Grand Banks inform the captains about the abundance of Buccinus on the various parts of the bank. This mollusk, which likes particularly sandy bottoms, is found everywhere in the Platier region, southeast of Grand Bank, while it is rare or totally absent in the north and west. As a result the fishing campaign almost always started on Platier, where the captains were surer to be able to find a good initial supply of Buccinus. The fishing then extended, in search of better catches, to the diverse regions of the bank propitious, at the same time, for the capture of squid and Buccinus. The boats returned, in general, to the eastern part before ending the season's fishing. At times when they went to Saint-Pierre for herring, the bait of the first fishery, they began fishing, on the contrary, on the western part of the bank, making toward the south and ending on the eastern part.

The substitution of Buccinus for bait during the first and second part of the fishing season, which Saint-Pierre and Miquelon could not furnish to the cod vessels because of the Bait-Bill coming in force, reduced one of the major reasons for landing at Saint-Pierre. Nevertheless, it was necessary for the bank vessels to discharge a part of their catch during the season because of insufficient hold capacity.

In the years following adoption of Buccinus for bait, the metropolitan operators sought to free themselves of the obligation of landing at the colony which involved, with the cost of unloading, a considerable loss of time. They accomplished this by taking advantage of the improvements during this period in rigging and equipment which permitted a considerable increase in tonnage. Thus the three-masted vessels attained a size from 300 to 350 tons with crews of only 30-32 men. Thus an equilibrium was established between the carrying capacity of the vessel and the season's catch. From this time the entire catch could be brought back to France, with no more reason for the

metropolitan boats to stop at Saint-Pierre. Except in special circumstances, damage to the vessel, epidemics, or other sea misfortunes, this was henceforth forbidden and, as a general rule, the season's fishing by the sailing vessels was carried out without touching land from the time of leaving a French port until the return.

So, from the time of abolition, in 1904, of the privilege of the French Shore, the French metropolitan fishery for cod in the waters of Newfoundland found itself practically freed from all ties with the great island and its little colony which had been the bases for the shore and bank fisheries.

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Hiring of crews on a share basis has always been the sole method of remuneration for the crews of the cod sailing vessels. One finds it used, during the different epochs, in a variety of forms, variable from port to port and sometimes from outfitter to outfitter in the same port, but which resolves to one of three fundamental types of hiring; the third, the fourth, and the fifth share, and exceptionally, the formula of sharing on the thousand, practiced for a few fishermen especially qualified.

Actually, the conditions of sharing on the sailing vessels of the Newfoundland fishery are uniformly regulated by a unique contract, the charte-partie (charter party or charter contract). This is the modern version of the old craftsman statute for the cod fishery which, in assuring to each fisherman remuneration for his individual work, recognizes between the investment and the labor a just association of interests.

The charte-partie of 1927, modified later by many agreements in detail, comprises 22 articles in which are defined the obligations of the crew and of the outfitter.

Article 16 defines the method of remunerating the fishermen:

The salaries paid for a fishing season are: the advance, the monthly pay on a fixed date, and the return salary.

The amount of advance is fixed each year. It is divided in two parts. The larger of these is paid the day of inspection of the vessel; the second is paid to the wife or dependents of the sailor 15 days after the departure of the vessel.

The monthly payments are made to the wife or dependents of the sailor on June 25, July 25 and August 25. Special payments are made in case of shipwreck or sickness.

The salary on return is established on the net product of the fishery. This net product, divided by the total number of fish caught, gives the sale price of one cod.

A fishing record is kept for each man, indicating, day by day, the post occupied by him, as well as the number of cod caught by his dory, or which has been credited to him when the dory has been engaged in capturing bait and not catching cod. A daily register, held by the captain, condenses all these data and the total cod caught.

There is accorded to each man 26 percent of the net sale value of the cod caught by his dory or attributed to him. This 26 percent is divided equally between the two dory men if both are "patrons de doris" (sailors to whom is trusted the command of a dory). If one is a "patron" and the other under his command, the first gets a $5/9$ share, the second $4/9$.

The captain is paid according to specially stipulated conditions in his contract.

The mate receives 20 percent of the average net value of cod caught by a dory. The salter receives 20 percent of this average, the apprentice-seaman 7.5 percent, the ship's boy, 6.5 percent, the second mate, 2 percent more than a doryman's share. The cook receives a salary equal to the $4/9$ share of a doryman.

Article 20 fixes the limiting date for payment of salaries, after which interest must be paid by the outfitter plus a 5 percent indemnity.

The crews of modern sailing vessels comprise 30-34 men including the captain, the first mate, the second mate, who is often the salter, two apprentice-seamen, a cabin boy, and a cook. The rest are the fishermen, dorymen, and bait men.

The exacting functions of splitter and salter are always filled by the officers. Today, as formerly, it is customary for the captain to split the cod.

In past times of outfitting for Newfoundland, the crews came from the Basque country, from the coast of Normandy, from the Brittany coast of the Channel, and from Cancale near Paimpal.

The Basque country first disappeared as a center of recruiting crews when the ports of Saint-Jean-de-Luz, Bayonne, and Cape Breton abandoned this fishery in the 17th century.

Later the Norman ports were resorted to, in some measure, with the Breton region to complete the crews of these vessels. The Fecamp sailing ships, the most numerous after those of Saint-Malo-Saint-Servan until the advent of steam trawlers which led within a few years to their complete disappearance, embarked around four-fifths of their crews from local sailors, the other fifth being recruited from Granville, Saint-Malo, Dinon, and Saint-Brieuc.

The region of Ile-et-Vilaine and Cotes-du-Nord has always been a nursery ground for the hardy breed of cod fishermen. On the other hand, the sea-faring men from Finistere have stayed away from the great cod fishery, providing to the sailing vessels only an occasional doryman and, to the steam trawlers, firemen, or bunker hands, and net-menders.

One cannot improvise on the Newfoundland banks. This hard and difficult life exacts presence of mind, endurance, and fortitude which are the fruits of family tradition and a severe apprenticeship. Thus it is that recruitment of the crews comes from the same villages and hamlets, from the same families, year after year, in a time-honored ritual.

The hiring comprises two distinct phases: the preliminaries, involving debate and agreement between the fisherman and the outfitter on wages and working conditions while fishing; and the actual hiring, concluded at the Office of Maritime Inscription before representatives of that administration.

Since the conditions of employment are uniformly regulated by the Charte-Partie, all debate on pay allowed the fishermen would appear superfluous. In reality, the practical application of the Charte-Partie is only theoretical. For the sailing vessel fishery, in which the quality of the crew is extremely important, each outfitter has a great interest in hiring the best men; and as it is logical that one gets what one pays for, the agreement is modified by a

bonus, often a substantial sum, which, after a discussion over conciliatory glasses of wine and outside the conditions of the Charte-Partie, is finally agreed upon.

It is a little after the season's fishing, in November or the first part of December, that a representative of the outfitter, the captain or fishing mate, undertakes his tour of recruitment by calling at the home of a possible crew member. It is the captains with good fishing records and with a way of command assuring the loyalty of their crews which makes the task of hiring easy. For the other captains, laborious negotiations and an open purse are necessary to assure a crew, more often than not one of second choice.

The outfitters are in perpetual competition and pay according to their worth for the best captains and fishing mates. Each measures his choice by the yield of the fishery.

When the captain has recruited his men, he returns their hiring papers to the outfitter. The latter then draws up his crew list which he submits to the Bureau of Maritime Inscription. About a month before sailing, the new crew is summoned by this Bureau for a review of the employment contract. The text of the Charte-Partie having been read and commented on by the chief district administrator or his representative, and the conditions having been accepted, the advances are paid, and the drawing up of the crew positions is agreed upon. Employment is henceforth definite and the fishermen cannot avoid the obligation of sailing when they are called by the outfitter or the captain.

While the captain is recruiting the crew, the vessel is being prepared, usually under the personal direction of the outfitter. Repairs to the hull and to the gear are made; the rigging is entirely overhauled; the sails are repaired or renewed; the fishing gear is checked and partly replaced; provisions are stored.

The equipment needed for a three-masted vessel, 350 to 450 tons, is considerable: 3 mooring anchors, 360 meters of chain, 2 steel anchorage cables, 800-1000 pieces of line to a dory, 150-200 buoy ropes, 100-200 dory anchors, 150,000-200,000 leaders with the same number of hooks, 12 to 18 dories, 150-200 dory oars, 2 tow lines, 1800-2000 bait bags (for Buccinus), 25-30 dory compasses, 100-120 baskets for line and for bait, 100-200 buoy barrels, and a sufficient quantity of indispensable items such as squid lures and jigs together with hand lines, gutting and heading knives, etc.

Consumable provisions are as follows: 300 to 350 tons of salt for preparing the cod, 10 tons of coal for cooking, 120 casks of cider, 10 hogsheads of wine, 3000 to 4000 pounds of potatoes, the usual quantities of pork, salt beef, preserved meats, fish, vegetables, butter, cooking fat and oil, rum and brandy, oil for lights, a supply of salt herring or horsemeat for the Buccinus fishery.

The final inspection having been made by the Inspector of Navigation, the medical supplies checked by this functionary and a doctor, the vessel is ready to sail.

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During the period of the three-masted sailing vessels, the end of the 19th and the beginning of the 20th centuries, the departure of the fleets of cod vessels was an impressive spectacle, especially at Saint-Malo, where the tradition of a grand departure together was preserved.

On that day, a veritable army of fishermen, nearly 5000 strong, escorted by their families, nearly always large, invaded the narrow streets of Saint-Malo, women and children carrying the gear of the fisherman: mattress, bedding, boots and personal belongings. This crowd overflowed the vessels to the crew quarters where each man was installed in his bunk which would be his home, sleeping chamber, and wardrobe for the whole fishing season.

One by one the vessels were towed by tugs to the outer harbor where they anchored and the last preparations were made in a quiet and sober atmosphere. Then at the first good breeze, they shook out their sails and soon disappeared behind Cape Frieheil.

The vessels practicing this fishery (now, as far as the French are concerned, is a matter of history) loaded their salt either at a port of call at the end of the season or at their port of outfitting. They sailed directly from the latter port to the banks.

The average time of crossing was 20 to 24 days. With favorable winds, these vessels sometimes crossed in 12 days; on the other hand, unfavorable westerly winds, often from the time of leaving the Channel, caused a period of six weeks for arrival at the banks.

From the departure the crew was divided into port and starboard watches of four hours, the port watch under the second mate, the starboard under the salter. The captain, cook, and the ship's boy were the only ones exempted from standing watch.

During the day, the men not on watch readied the fishing gear: gaffs, pikes, dory anchors, oars, buoys, bait-bags and baskets; then they rigged the dories with their diverse accessories. Finally, a few days before reaching the banks, they rigged the trawl lines.

Each dory received 12 pieces of line of 75 fathoms each, a total length of 3 kilometers of line about 4 millimeters in diameter. Leaders were attached at intervals of 1-1/2 meters, these being a meter long and 1 millimeter in diameter, steel hooks of English, Norwegian, or French manufacture, no. 13-1/2 or 14, attached at the end of the leaders. Thus there were around 1500 hooks the dorymen had to bait each day.

On nearing the banks, the captain took advantage of a good day to dry the white sails used in sailing to and from the banks. At the same time, he took down the top-gallant mast which was stowed away with other rigging between the main and mizzenmasts on the deck. In place of the white sails, smaller sails, especially treated to withstand a stay of many months on the bank in a climate of fog and perpetual humidity, were used. For this purpose, these sails were usually dipped in a mixture of oil and tar.

Rare were the captains who resorted, during the crossing, to astronomical observations for longitude, even if they had the means and the capacity to do it. As a rule, the navigation was done by estimation for longitude, with observations of latitude when atmospheric conditions permitted. But, however imprecise the estimation of longitude, after the end of three weeks or a month of crossing, the captains, as well as the crews, did not fail to recognize the "signs" which announced the proximity of the banks. These were the birds which appeared at a distance of 25-30 miles from the banks and which, becoming more and more numerous, were an infallible indicator. The color of the water, the aspect of the atmosphere, the cooling temperature coming after the appearance of the birds furnished additional signs.

Soon surroundings confirmed arrival on Platier and allowed the captain to locate the position of the vessel almost exactly on the banks. The vessel took a position, which the captain determined in the light of his experience, for the beginning of fishing.

As soon as the vessel anchored, if the arrival was during the day, at the dawn of the next day if the arrival was at night, everyone went to work.

The dories were immediately put overboard for the first operation in which they were used, which was to assure a sufficient quantity of *Buccinus* to start fishing. These were captured near the vessel by means of bait bags baited with horsemeat or salted herring. Later some dories continued to maintain the initial supply according to need.

When a sufficient quantity of *Buccinus* was landed on deck, from which soon emanated the pestilential odor of their decaying flesh, the trawls were baited and the fishing proper begun.

The departure of the dories for setting the trawls was done each day about 5 a. m. , each of them occupying a sector determined by lot at the start of the season but periodically rotated.

Going to his assigned sector, the head doryman reaches, by oar or by sail, the point where he anchors one end of the trawls marked by a buoy attached to the anchor line. Then he runs out his lines, being careful, under penalty of fouling, to go with or across the current but never into it. Coming to the other extremity of the trawl, he casts over the second anchor with its attached buoy.

Setting the trawl takes about 2 hours when the sea is calm and the dories don't have far to go from the vessel. But this can take considerably longer in bad weather or strong currents. Moreover it depends a great deal on the distance to which the dory must go away from the vessel.

On arrival at the fishing grounds, the dories have only to go about 100 fathoms from the vessel. But, little by little, the cod withdraw from the area around the vessel fouled by waste, while the malodorous jetsam attracts *Buccinus* and, at the same time, undesirable enemies of the cod and destroyers of the trawls, dog-fish and Greenland sharks. Also, while the bait fishermen get better catches close at hand, the trawls have to be set farther and farther away, to distances up to 3 or 4 miles.

It is then that the fishermen run the gravest risk on the banks, the sudden falling of fog or bad weather, with the danger, for the dories, of not being able to find or return to the vessel and of falling into the midst of the

great and hostile immensity. Among the seasons when this has happened, one particularly tragic toll occurred in 1908, when 230 fishermen disappeared thus, escaping the search of the Naval Station and the hospital ship, Oeuvres de Mer.

All driftings, happily, do not end so tragically. It frequently happens that lost dories are picked up by another vessel, or that they make land at Newfoundland or at Saint-Pierre-et-Miquelon. It is in view of such accidents that regulations make obligatory the placing, on each dory, of two gaffs, two bailing scoops, five oars, a fog-horn, at least 9 pounds of biscuits and 6 quarts of water, these provisions being sealed in small tin containers.

The vessels themselves run risks which have resulted, among the bank fishermen, in a number of victims. The most feared is the danger of encountering drifting ice, the shock of which, coming unexpectedly in fog or at night and impelled by the current, is often mortal for the vessel. Collisions with steam vessels crossing the banks also causes equally, in some years, numerous accidents. They are now, fortunately, extremely rare since passage by liners traveling from Europe to New York is forbidden across the banks. These vessels are particularly dangerous because of their great size and speed, even when they reduce speed in the fog.

On returning to the ship, the men raise the dories to the deck if there is need of precaution for the night. In good weather the dories remain, at night as well as day, tied to a mooring cable passed over the stern.

The crew eats when all the dories are back. Men designated in turn man the pumps to free the bilges of brine exuded from the piles of salted cod in the hold, as well as some seawater.

On vessels on which the custom of a prayer is maintained, this is recited aloud before the assembled crew either by the captain or by a sailor called by his co-workers "The Cure."

The anchor lights being lit, everyone goes to bed except the men on watch. After July, one man on watch is assigned a squid jig which he keeps constantly over the side. If a school passes, he immediately wakes the whole crew and each one, whatever the hour, takes his place at the rail, jig in hand; for one never lets pass an opportunity for catching squid, the best of baits.

At the first light of dawn, the men on watch wake the crew so that the dories will be ready to take to sea as soon as it is light enough to see the buoys.

After prayer, on the vessels where it is said, each man receives a ration of brandy and bread or biscuits.

Between 3:30 and 4:00 o'clock, in summer, the dories are put overboard, or cast off from the mooring line, and the fishermen go to haul the trawls. This is done in the reverse of setting, into the wind and against the current to avoid fouling. The first anchor is hauled in with its buoy. Then, as they are hauled, the lines are coiled in the tubs in the bottom of the dory. The cod are unhooked and thrown into the boat, the head doryman gaffing those which become unhooked as they come out of the water. The small fish are thrown back where it is usually seized by dogfish which follow the dory, frequently seizing cod caught on the line, while the Greenland sharks more often do their damage while the trawl is still on the bottom. Neither one nor the other seems to be bothered by the hook which it swallows with the cod.

Usually other bottom fish are caught with the cod, such as haddock, halibut and skates. The skates are almost always thrown back. According to circumstances, the haddock are thrown back or saved to be salted with the cod. When the dories are not heavily loaded with cod, a part or all of the halibut is saved, either to be eaten on board, or to be salted as part of a small supply of "false-fish" the outfitter allows the fishermen.

From the time of departure to return of the dories, hauling of the lines lasts from 3 to 5 hours and sometimes more, according to the weather and the catch. When the fishermen are obliged, because of the abundance of fish which fills their dories, to make two trips, the last dories may not return before noon. These are then days so wearying the men sleep with a leg hanging from their bunks which they have neither the strength nor the courage to pull back in!

Sometimes imprudent acts are committed: in order to make only one trip, the men load their dory to the gunwale. Then, at the least ripple, it can founder, after which the men, engulfed in their heavy boots and stiff equipment, are in the water where aid cannot reach them immediately.

As each dory comes alongside, the cod are immediately thrown on deck by means of a steel-pointed pike with a wooden handle. During the unloading, the fish are counted by the mate who records the count to the credit of each man.

The dories tied to the mooring line, the men eat rapidly, then set to work on the cod.

The first operation, in which all the fishermen participate, is that of gutting the fish, the crew of each dory cleaning its own fish.

Each cod is fastened by the head on a steel point solidly fastened to the rail of the boat so as to hang the cod vertically before the operator. He inserts his knife in the stomach, opens it with an upward movement and it empties its contents at once. From these, the livers and roe are saved while the rest is thrown overboard.

The gutted cod are thrown to a wooden pen on the deck where an apprentice seaman performs the heading.

While the work on the cod progresses, the dorymen, their cod gutted, start baiting their trawls.

This is not a little affair, for each crew of two men has to check and bait 1500 hooks for the next set and may be obliged to untangle tubs of line which are sometimes terribly snarled. In good conditions, good fishermen seldom snarl their lines in hauling; but there are always some careless and clumsy fishermen. These often have no other way of straightening out their lines than to take off dozens, sometimes hundreds of hooks; so it happens they spend hours and sometimes have not finished when the dories are ready to leave again. They are then obliged to go out with only part of their lines, which earns the compliments, to the point and energetically expressed, of the captain or the fishing mate.

Baiting the lines is followed by a lunch for which the men generally receive a quart of wine, biscuits or bread, and butter. Since the rules existing on all boats of the great fishery require a cook free from all other duties, the bread is made daily on most of the vessels and replaces partly or totally the biscuits.

After lunch, the daily cycle is repeated with the departure of the dories to set the lines.

While the dorymen have gutted their fish and are proceeding with the baiting of their lines, the work on the fish continues on the deck and in the hold by the rest of the crew.

In the pen where they have been thrown, the gutted cod pass to the hands of the header. Seizing a cod in both hands, he detaches the head by a

vigorous blow applied on a cutting instrument of sheet metal fastened to a table, the "guillotine". The tongue being saved to be put in a barrel and salted for the crew, the fish then passes to the splitter.

Splitting is, with salting, a most delicate operation with the cod. Great steadiness of hand is required which is acquired with long practice. It is usually done by the captain, the fishing mate or the second mate.

Seizing the headed cod by the left hand enclosed in a leather glove, the splitter slices it to the tail by a single pass with a special knife, cutting to the desired depth so that the fish lies flat. He cuts out then the spine, at some distance from the beginning of the tail, pulling out the upper part but leaving the remainder to give firmness to the fish.

After splitting, the cod passes to the hands of the ship's boys and apprentice-seamen. They wash the fish, eliminating all traces of blood by pressing strongly on the back section and scraping the flesh with a gouge-shaped instrument. Immediately after, it is carefully washed in a tub where the water is constantly renewed by means of a small hand pump; then it is placed on a slide conveying it to the hold, the domain of the salter.

The latter, a major office, exercises a role of greatest importance, for on the manner in which the fish is salted depends the qualities of preservation. As the functions of the salter are trusted only to specialists of great experience, they are sought for by the outfitters as good captains.

The first act of the salter is to lift each cod by the tail with the left hand. Instantly judging the weight, he rubs vigorously with salt with the right hand; then, having laid it head against tail on the last fish on the pile, he takes in a wooden scoop a quantity of salt exactly proportional to the weight of the fish and covers it with an even layer. The following fish are treated in the same way, one on another until, a limiting height having been reached, a new pile is started beside the last.

After three or four days of draining, favored by the weight of the cod thus piled, the salter proceeds to the final stowing by tiers, each tier of fish replacing the stored salt, after the latter is cleared away. This stowing starts preferably toward the stern of the vessel.

The salter proceeds with this operation with the greatest care, the cod being piled skin side down, so as to lay one on the other very flat without fold

or wrinkle, the salter alternating a layer of salt and a layer of fish, the salt separating contact of fleshy parts.

The success of salting demands the maintenance in arranging the tiers, of just the right proportion of salt between the layers of cod, since an excess burns the fish, while insufficient salt renders them "sweet" and of poor keeping quality. On the average, the weight of salt used represents nearly three-fourths of the weight of the fish treated.

The skill of the salter is not the only factor for good preservation. The quality of the salt is equally a factor of extreme importance, for the use of certain improper salts can lead to contamination extending more or less to the whole of the cargo by introducing certain altering agents: chemical actions or the action of living organisms, molds, or bacteria.

The gravest of these is the "red", characterized by the formation of a more or less extensive slimy or viscous layer, the color of which is a rose salmon or bright red. Although this is quite superficial, this accident always results in a great depreciation of cargoes so affected.

Recent research has furnished the means of eliminating almost entirely salts likely to cause this. They have corroborated scientifically the experience acquired by the fishermen as to which salts furnished by the ports of Cadiz and Iviza, in Spain, and Setubal in Portugal are most sought for; but they can, moreover, confirm that other salts, not having an established reputation, are safe.

The treatment of livers to extract oil is practiced irregularly on the sailing vessels fishing with line trawls, while in the handline fishery it had received particular attention. Outfitters and fishermen give for reasons the big catches obtained by the line trawl, requiring the full time of the crew for the principal operations of preparing the fish, the high price and the encumbrance of casks, and the difficulties of extracting oil under varying temperatures. In general, the outfitters leave the captains entirely free to extract oil or not. Often the crew will treat, under favorable temperatures, a certain quantity of livers, the profit from which the outfitter allows them to keep.

The process used on the sailing vessels is that of autolysis, in which the livers give up their oil, about 40 percent by volume, as a simple result of mass decomposition.

The livers submitted to the treatment have to be in as good condition as possible, and any not healthy-looking or fat are thrown out. Good livers are recognized by a cream-colored tint and by being soft enough to be pierced by light finger pressure. Hard and dark-colored livers do not yield enough oil to be used. Those with a brown color or with greenish spots can be used only for making industrial oil of inferior quality.

On the boats where treating livers is not completely neglected, it is done at the beginning of the season when it is not too cold. The best product is obtained at this time.

The operation is carried out in barrels, the upper end of which has an opening large enough for the livers, stored on deck behind or near the cod pens. The livers to be treated, put aside by the gutters, are simply thrown in the liver barrels. By reason of the mass of livers and the decomposition of the tissues, the oil soon separates and rises to the surface. As the operation proceeds, the oil is drawn off to barrels which, when filled, are lowered to the hold for storage.

The product is a very light clear oil, lightly colored with little odor. After undergoing treatment to purify and deodorize it, it is suitable for pharmaceutical use, while inferior oils, malororous and dark-colored, are much less valuable and are used for industrial purposes, such as leather making, with the oils of other varieties of fish.

When, in cold weather, the separation of the oil is retarded, the process is speeded up by pouring a quantity of hot water into the barrels. Oil thus extracted does not have as good a color as that formed naturally.

On the other hand, the relatively warm temperatures of mid-summer cause rapid separation of the oil, but the oil thus obtained has a reddish color and an offensive odor which relegates it to industrial uses.

Oils obtained by autolysis have a reputation of turning rancid quickly, so that their pharmaceutical use has been almost totally eliminated in favor of oils prepared by modern methods.

The saving of roe is even more neglected by the bank vessels than the preparation of liver oil, in spite of a bonus of 15 francs per hundredweight, instituted by a law of February 26, 1911, for roe of good quality brought back

to France. The principal reason for this is that at the beginning of the fishing season for the sailing vessels, most of the cod have already spawned and only furnish, consequently, soft roe of no value. On the other hand, when the occasion presents itself, to sailing vessels arriving early on the banks, for the taking of good quality roe, the fishermen undertake, because of the relatively high price, to salt and preserve roe in sacks until the return to France when it is repacked in barrels. This primitive procedure does not compare with methods used on the coast of Norway, where the roe of cod taken before spawning is prepared ashore under the best of conditions, then sorted and repacked in dry salt in one of the great ports of Bergen, Aaslund, or Kristinsund.

On the other hand, the sailing vessels from Iceland, which commence fishing at the time of spawning, take the greatest care in preserving the roe, and it is the same for the modern trawlers, in particular those from Fecamp where the roe trade has acquired, since the sailing days, a great importance.

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The work follows an invariable rhythm, Sunday as other days. The fishing is interrupted only by very bad weather, when the state of the sea prevents the launching of the dories. These are, then, for the fishermen comfortably closed up in their cabins, the "tides of Paradise". By tradition, the afternoon of the 15th of August alone is the object, on the part of most vessels, of a regular work stoppage.

It happens, at certain exceptional times, that the line trawls have to give way to another method of fishing. This comes about everywhere during the capelin season, when cod, gorged by capelin, maintain themselves in compact masses in the upper layers, ignoring any baits offered on the bottom.

The fishery is then carried out by means of a device consisting of a line to which is attached a lead fish bearing two hook-shaped prongs. The dory proceeding quietly forward, the fisherman lowers the line to the midst of the school of cod giving it a realistic motion by raising and lowering the arm; then he hauls the line sharply to hook the cod in any part of its body.

This fishery, very fatiguing, sometimes gives a high yield. It is often practiced in Greenland.

After beginning their fishery on Platier, the captains try their luck, according to inspiration, or after obtaining the desired yield, on the parts of

the Grand Banks, sometimes also on the banks to the west, Saint-Pierre and Banquereau, or more rarely to the northeast, on the Flemish Cap, known for the size of fish often taken in abundance, but where the depth requires special arrangements for anchoring the vessels.

Following surveys initiated in 1929 by the Office of Fisheries, on the banks of the west coast of Greenland, the custom became general, among the sailing vessels, to leave the Newfoundland waters at the end of June to end the fishing in this region where, in certain years, the catch is very great, consisting of very large fish.

The conclusions of studies carried out by Le Danois and Commander Beauge on hydrographic conditions favorable for great concentrations of cod have actually placed the Office of Fisheries in position to furnish fishermen a precise annual forecast on the comparative yields to anticipate at Newfoundland and at Greenland.

The fishery continues for each vessel until the hold is full or until the end of the season.

A three-masted vessel can actually carry 7,000 to 8,000 quintals (hundredweight), the quintal of cod which is, in reality a metric half-quintal, being counted at 55 kilograms for green cod such as the vessels deliver, and at 50 kilograms for dry cod. In an average year, a catch of 5,000 quintals is generally considered satisfactory.

Sometimes the vessels, having exceptional fishing, return to France at the end of August with a full trip. In normal conditions, the vessels leave by the 15th of September, the last vessels leaving in the first days of October, a little earlier from Greenland than from Newfoundland because of the cold and the rapid decrease in the length of day in polar latitudes.

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Among the vessels which the French fishermen find each year on the banks, the most numerous are the Portuguese. Since remote times, salted and dried cod has had an enormous consumption in Portugal, and one can affirm that the possibility of provisioning vessels with salted cod, which was the staple of the crews and transported soldiers, was a contribution of first importance to the great conquests of the Portuguese navigators in the 15th and 16th centuries.

Driven from the coasts of Newfoundland, as much by the English as by the French and the Basques, they specialized early in the bank fishery.

After diverse misfortunes which, leading to the bankruptcy of its cod outfitters, rendered the Portuguese subject to great foreign imports of cod, they rebuilt, at the end of the 19th and beginning of the 20th centuries, a great fleet of fishing vessels, comprising many old French three-masted vessels. These remained, to the beginning of World War II, the only great fleet of cod sailing vessels still active.

The Portuguese fishermen stayed faithful to the hand line; but these were not fished from the vessel. The fishing was done from small dories by one man holding a line in each hand. The bait generally used was the great sea-clam, a bivalve one finds in the mud at certain depths, and which was supplied on the spot, lightly salted, by American vessels coming to fish on the bank. The cod was prepared in about the same way as on the French sailing vessels.

Statisticians establish that the yield from this fishery is clearly inferior to that of the trawl line fishery such as practiced by the French. But the Portuguese outfitters found compensation from this difference in the cost of outfitting in the two methods.

Americans and Canadians who practiced the fishery on the banks, the Western Banks and the Grand Banks, use modern motor schooners from 100 to 150 tons. Some still use the hand-line; the others fish, like the French, with line trawls, using the sea clam as bait. But, thanks to motor dories, they visit the trawls three times a day, underrunning the lines and rebaiting. Thus they get a greater yield than results from one hauling per day.

Cod thus captured undergoes, on board and ashore, diverse kinds of preparations, furnishing special products adapted to the tastes of American and Canadian consumers.

Concurrently with the cod fishery, these small vessels draw extra profit from two fish also captured on the banks, the haddock and the halibut, whose use is partially or wholly neglected on French vessels.

The flesh of the haddock, lean, scanty, and with little thickness, is not suitable for salting and gives by this process a product of mediocre market value. Also the haddock is only salted as a last resort, aboard sailing

vessels of the great fishery devoid of refrigeration, to compensate for a scarcity of cod, and because it can be exported as cod.

On the contrary, Canadians and American vessels, which fish close to their home ports, carefully save haddock, for, after salting and smoking ashore, it furnishes a product, actually known in France as "haddock", which is made and eaten in great quantity in the United States, Denmark, and especially Scotland.

If its flesh does not have the delicate quality of sole or turbot, the halibut is nevertheless an excellent fish, considered fresh as an item of choice in England.

The French fishermen capture numerous halibut with the cod. But this fish, unknown in the metropolitan markets, difficult to salt, ranks among the "false fish", without interest to the outfitters who leave its disposition to the crew. The latter consumes a part of the catch and salt a modest quantity which, with a small amount of cod, is considered their personal property. The rest, when abundant, is thrown back, while in England the price of halibut is 3 to 4 times that of cod!

The Americans and Canadians undertake, on the contrary, special outfitting, with steam and motor vessels, for halibut, not only in Newfoundland but at Iceland and Greenland. The fishing is done by trawls baited with frozen herring, set by dories, sometimes even by the vessel itself when it is a motor schooner. Preserved in ice until landing, the fish is sold fresh to the consumer, after holding in vast freezers, or salted and smoked, operations at the end of which the filets are marketed. The livers, preciousy gathered and treated ashore by modern methods of extraction, furnish a therapeutic oil generally considered superior to cod liver oil.

The Norwegians pursue this fishery around Greenland, with factory ships of 6,000 to 10,000 tons, using 50 motor dories and sometimes more, aboard which the fish is treated by quick-freezing.

The great modern French fishery is actually outfitted to utilize, more or less partially, the haddock and halibut captured with the cod. The progress thus realized in the rational utilization of the accessory products of the cod fishery is one of a number of aspects in the evolution of this very old industry as the 20th century opened for the era of steam trawling.

Chapter VII. Steam Trawlers and the Great Modern Fishery

It was in 1907 that the first French steam trawlers appeared on the banks of Newfoundland, at the same time in Icelandic waters. But, if trawling for cod first started in the Iceland fisheries, many years of groping preceded its definite adoption in Newfoundland, so that it was only after the first World War when requisitions of all the steam trawlers in the battle against the submarines was lifted, that the era of trawling truly opened on the banks.

The distance of Newfoundland justified these hesitations at first. The first trawlers coming to fish on the banks were simple high sea vessels of about 200 tons, with a modest range in which the cost of outfitting found itself burdened with much onerous coal-loading during the season, not to mention the expense of going to and returning from the banks.

After 1919, the steam trawlers, returned to their owners, went back to the banks. This time they were in number, for the high price of cod outweighed all other considerations.

From this period, trawling was practiced each year in Newfoundland by a fleet of 30 to 40 steam trawlers, at first concurrently with the line trawl fishery, then supplanting it more and more, the high seas steam vessel gave way to the steam trawler especially designed for this fishery.

In the first period, the steam trawlers, whose tonnage fluctuated between 400 and 800 tons, found it advantageous to make one crossing, going and returning, per season. While, for many years, the metropolitan sailing vessels abstained, in normal circumstances, from all calls at Saint-Pierre, the steam trawlers came many times during the season to unload their cod and to go, at the same time, into Nova Scotia ports to take on coal.

Later the trawlers, as the sailing vessels had, freed themselves from these intermittent stops. They achieved this by an increase in tonnage, resulting, with the enlargement of their transport capacity, in a considerable increase in their range of action.

Then appeared, beside the steam trawlers burning coal or fuel oil, trawlers propelled by diesel engines.

One of the principal advantages of the diesel over the steam engine is an important economy in size and in personnel with the riddance of the boiler and condensers which are large and exact constant vigilance. It also assures, with equal power, a very superior radius of action, an advantage particularly important for trawlers in the great fishery, to which its adoption permitted carrying a full supply of fuel sufficient for the whole season and avoided thus the refueling, often very onerous, in foreign ports.

The steam vessel still has, to the present, its resolute partisans among the outfitters for the great fishery. Dependable, easily run and maintained, avoiding all complicated mechanisms between itself and the propeller, it is, besides, from the point of view of realizable perfection, far from having said the last word. Besides, aboard the steam trawler, the winch, an essential instrument in the trawl fishery, is, as well as auxiliary equipment, fed directly and simply by the boiler, its function requiring aboard motor vessels, a completely independent installation, generally electric, inspiring less confidence, especially from the point of view of reliability, among the outfitters and captains.

Steam or motor, the modern trawlers of the great fishery attain a net tonnage of 1300 tons, with a gross tonnage of 1600, while the largest three-masted vessels equipped for the line trawl fishery were 430 net tons or 600 gross tons. These trawlers, under the French flag, are the largest in the world. They are the solution to the catching-transporting problem, perhaps not the best from the point of view of yield of the fishery compared to the effort expended, but which has required the outfitters for the great fishery, because of the great distances and the cost of putting into port for landing and unloading, to conceive a vessel not only from the point of view of the fishery proper but equally in view of transporting the total catch of cod.

Exploitation with these trawlers is extremely demanding. To obtain a profitable yield, it is indispensable, first to reduce to a minimum all loss of fishing time and to obtain the best possible yield, then to get from the fish, on the spot of capture, everything that can be used.

Thus the great modern trawler fishery is based on scientific organization and on rational utilization of its products. In addition to radio which permits him to stay in constant communication with his outfitter, the captain has at his disposal the most modern instruments of navigation, such as radio direction finders and continuous sonic or ultrasonic depth finders.

Deep sea thermometers and salinometers allow him to take the temperature and salinity of the water at different depths to avoid the laborious setting of a trawl except where the temperature and salinity indicate suitable hydrographic conditions for the cod.

Contrary to the last sailing vessels of the great fishery, which fished exclusively in Newfoundland waters, and later in Greenland, the trawlers fish everywhere cod is found, at Newfoundland, Iceland, Greenland, in the neighborhood of Bear Island in the Barentz Sea, as far as Nova Zembla. In general, they do not fish much around Iceland where, in spite of the use of rollers, certain rough bottoms constitute a permanent danger to the trawls. Leaving a full month earlier than the sailing vessels, they make, usually, two trips a year.

In Newfoundland waters, the areas most frequently fished by the sailing vessels by line trawl are often unsuitable for the trawlers. The Platier region, for example, excellent for the first, presents in its eastern part only hard and rough bottom, littered with hollows, bumps, pinnacles, as well as wrecks and lost anchors. A trawl set there is immediately torn to pieces. Until the end of spawning, it is only on the slopes of the Grand Banks, in depths sometimes exceeding two hundred fathoms, that the trawlers seek concentrations of cod.

The continental shelf of the Newfoundland banks rises almost perpendicularly from great depths. In certain regions, the difference in level changes 500 fathoms in less than 4 kilometers, a slope close to 30 percent.

On this slope, waters of different temperatures are found distributed in narrow layers. The cod, seeking the most favorable temperature and salinity, is found in certain of these strata, where it gathers. At a depth 5 to 10 fathoms higher or lower than this optimum depth, none are found, for this may be the domain of another species of fish, the haddock for example. The art of the captain of the trawler is to find the depth where the cod is and, having determined it, to follow the contours of this depth with the trawl. It is here that the continuous depth recorder is infinitely valuable, permitting him to direct his course in advance so that the following trawl passes exactly at the desired depth. One sees, moreover, that correct conduct of the course of the trawl in these conditions requires constant vigilance.

But the cod does not always stay on the slope of the shelf. After the spawning season, it disperses all over the bank, so that the trawlers must

search for the fish where local hydrographic conditions are favorable for its presence.

The gear used by the trawlers is the Michelet trawl, derived from the Vigneron-Dahl gear.

The functioning of the trawl with doors, which first appeared in the last years of the 19th century, is based on holding open the net not, as in the old beam trawl, by a massive transverse timber but by the dynamic action of two vertical boards held in an oblique position and tending thus to be pushed apart by the stream of water just as a kite rises under the force of a stream of air.

These boards are in the form of two wooden rectangular panels, about 3.5 meters long and 1.4 meters high, protected, on the bottom, by a heavy iron shoe allowing them to slide along the bottom and causing them to weigh more than a ton.

The two doors are attached at their rear to the two extremities of the trawl opening and to the trawler by two separate cables attached to two triangular brackets, on the internal face of the door, of different height which pivot on their parallel bases. The point of pivoting on the larger bracket is placed on the vertical mid-line of the door, that of the smaller forward bracket on a parallel line one quarter of the length of the board. The apexes of the two brackets are brought together as the attachment point for the towing cable. This arrangement caused the door to take an oblique position as towed, thus assuring a maximum width of opening of the trawl.

On the first doored trawls, the otter trawl type, the doors were attached directly to the wings of the net. The innovation characterizing the Vigneron-Dahl gear was the attachment of the doors at a distance of 50 to 100 meters from the ends of the wings by a length of cable. The cable is about 75 meters in the Michelet trawl. In this trawl, the cable coming from each of the doors is attached to a spreader of hardwood 1.5 meters long, in a vertical position, which itself is attached to the wing of the net by three parallel steel cables nine meters long.

The great advantage of trawls of the Vigneron-Dahl type is an important increase in the area swept, by fact of the action of the doors at the end of the cables which prolong the sides of the net, effecting a greatly superior opening. These arms of the net frighten the fish and concentrate them before the opening of the trawl.

Because of this, the opening of the Michelet trawl has been considerably reduced by comparison to other trawls.

This net, which constitutes the trawl proper, is a great funnel of netting in the form of a flattened cone, sixty meters long. The narrowest part, a terminal cylinder about 2 meters in diameter, the cod-end, has triple meshes and is protected on its underside by leather to reduce the wear from dragging. This cod-end of the net can be cut off about 3 meters from its extremity by the action of a steel cable which runs through a series of buckles around the cod-end and is prolonged by a manila line to the forward part of the net, from which this manoeuver (splitting) can be managed.

The mouth of the net opens between its two upper and lower faces, the square, and the belly which is in contact with the bottom of the sea. These two surfaces are united with the cod-end by an intermediary piece, the lengthening piece, of double mesh. The forward edges of the square and belly between which opens the mouth of the net are attached to ropes, the headrope and the footrope. The footrope is of much heavier material than the headrope. Also it is wound with old sail cloth from one end to the other to reduce wear on the sea bottom.

Actually this footrope to which the belly is directly attached is a kind of "false" footrope duplicated, for direct attack on the bottom, by another true footrope, a steel cable connecting directly with the cables from the doors and carrying, in its middle section, the rollers.

The rollers are heavy wooden disks, 25 to 30 centimeters thick and with a diameter of 50 to 60 centimeters. About ten of these are threaded on the steel footrope for a distance of ten meters and connected to the false footrope by 11 interspaced chains 40 centimeters long. The footrope with rollers having passed over an obstacle, the false footrope follows without damage.

The footrope of a trawl is always much longer than the headrope. It thus assumes a very acute concavity, when dragged by the trawl cables, which is favorable for its attack on the bottom.

The opening of the trawl should be as great as possible in height, for the cod does not always stay directly on the bottom but near the bottom. For this purpose, the headrope is provided with 120 glass floats for a distance of 10-1/2 meters along its middle part and to each of its extremities with 10 steel floats or 40 glass floats. In fishing action, the headrope forms, in the

vertical plane, an arc of a circle of sharp curvature. Thus a height of from 10 to 17 meters is obtained.

The trawl is, besides, furnished with two quarter ropes which, starting from each side of the footrope near the end of the rollers, pass above the headrope and run along each of the seams which unite the back and belly the length of the net. They serve, when the net is hauled up, to close the opening of the net which is thus brought over the rail in one piece.

The fishing winch, an essential implement in trawling, since all handling of the trawl gear depends on it, is a powerful instrument of 100 horsepower at a minimum, steam or electricity depending on whether the vessel is propelled by steam or diesel motor. It consists of two drums which turn on a common axis but which can be operated separately. The drums are sufficiently large to carry as much as 1200 meters of steel cable. The drums have niggerheads at the ends of the axis permitting hauling manoeuvres from the deck.

As they leave the drums, each of the trawl lines passes between vertical rollers moving sideways on a toothed rack which guide the cable so that it rolls up evenly on the drums.

From there the cables are directed by bollards to the front and rear of the vessel to pass over great pulleys on a gallows-frame inclined toward the water, to which is also attached the trawl door.

The trawlers have two sets of gallows-frames, one to the port and one to the starboard. Except in case of damage or difficulty, the fishing is always done on the starboard side and, during a whole season, the trawlers may have only one or two occasions to use the port gear.

Fishing equipment loaded on departure consists generally of 6 trawls, eight doors, replacement trawl cable in 400 meter lengths, as well as pieces of netting and material for repairs.

Setting the trawl is an operation demanding a quick eye and cool judgment, whether in bad weather or in a flat calm. This manoeuvre is always directed by the captain himself, as well as all the fishing operations.

Practically, the captain, whose place is on the bridge, does not descend from there during all the time of fishing.

In setting the net, all the men on deck, directed by the secondmate, are called to assist. The net, rolled up by the rail, is freed from its fastenings and lifted to the rail; the vessel is brought so the wind is on the side of the vessel toward the net. In this position, the vessel rolls from side to side if there is a sea, which there nearly always is.

The cod-end and the rest of the net is thrown in first. The men then seize the headrope which passes in turn over the side with its glass floats. Then the footrope, too heavy with its rollers to be handled, is lifted by a line from the winch and passing over a pulley on the forward mast. During this operation, the rollers, so as not to swing dangerously, are snubbed by a line from a bollard ahead of the winch.

At the time of a favorable roll, and at the command of the captain, the snub is freed, while the men, braced against the rollers, push them toward the sea; the line from the mast is released and everything drops in the water.

The trawl is in the water, its mouth, gaping from the weight of the rollers which carry the footrope toward the bottom, turns toward the vessel to which it is attached by the trawl cables which pass to the winch from the gallows frames. Staying almost still between wind and water, it drags on the trawler which slowly swings into the wind.

The engine is started at half speed forward. When the captain judges the speed sufficient, he gives the command to let out the forward trawl line which allows the trawl to swing about toward the rear. At the precise moment this result is achieved, the rear line is let out and the two lines run out at the same speed. The trawl, weighted by the rollers, soon disappears from sight.

At the command, "Doors", the winch stops for a moment. The forward door is quickly attached to the trawl line by the insertion of a linking assemblage. As soon as freed from the gallows frame, it falls into the sea with a splash. The forward trawl line is let out until the forward door is abeam of the aft door which is also then released in a similar manoeuver; then the two drums of the winch are unbraked.

Under the action of the weight of the two doors, the trawl lines run out and the doors open the mouth of the net.

As a general rule, the trawl lines are run out to a length about 3 times the depth for depths of over 50 fathoms, and more for lesser depths.

The winch being stopped, there remains to unite the two trawl lines in a heavy iron "hook-up" block, the opening of which is equipped with a release hook. Mounted to the frame of the vessel toward the rear, the purpose of the hook-up block is to hold the trawl cables along the side, preventing entanglement with the propeller.

At command, a man mounts to the rail near the after gallows-frame and hooks the trawl cable by a hook attached to a rope which passes over a pulley near the hook-up block. The apprentice-seamen and ship's boys take the free end of the rope and pull it forward to one of the niggerheads of the winch. The winch then pulls the rope and the two trawl cables are hauled up to the hook-up block which closes upon them.

The engine is then set to fishing speed, giving a towing speed of 3 to 5 knots, and the tow commences. For the large cod trawlers, this time varies between $3/4$ and 2 hours. Sometimes, when the cod are concentrated, one doesn't even bother to hook up the trawl cables. The trawl, hauled back after 15 minutes, yields 20 tons or more of fish!

The tow completed, the watch calls the men to the deck for hauling back. The winch is started up. The boat is swung downwind.

At command of the captain, the trawler goes ahead full speed and a man with a bar of iron strikes the release on the hook-up block; the cables fly out violently. At the same time, the captain swings the vessel starboard side to the wind and stops. The winch immediately begins action, pulling in the forward cable to its "mark", so as to equalize the different lengths separating the doors, then both cables are hauled back at the same speed.

Hauling back may take half an hour or more, depending on the depth and the weight of the catch.

As soon as the doors appear, the winch is slowed. It is stopped at the exact moment the doors reach the gallows-frames, to which they are immediately attached and, at the same time, freed from the trawl cable. Before the trawl itself appears, the cod-end emerges, floated up by the abrupt decompression of body tissues and air bladders of the captured fish. It even happens that, when the fish are abundant, it bounds out of the water, not without risk to the cod-end which sometimes bursts from this shock.

The mouth of the trawl appearing, alongside the ship, three lines appear on the upper part, all near the sides. One of them is the end of the splitting rope. The two others are the quarter ropes.

By hauling in the quarter ropes, the mouth of the net is closed and the head and foot ropes brought together with a good quantity of netting. The head and foot ropes are then hooked up by a line passing over a pulley and lifted to the deck.

By means of a sliding knot running along the net as low as possible, or by a supplementary splitting strap, the greater part of the net is pulled over the rail by hand.

The lengthening piece now comes alongside being, according to the amount of fish caught, one to three meters in diameter. By means of a special line, fastened to the lengthening piece, the latter is attached and, at the same time, the line to the splitting strap is attached to the niggerhead.

The lengthening piece and the cod-end are thus hauled in, the first to the side of the ship, the second to the surface of the water.

When the splitting strap is pulled shut, it cuts off a terminal pocket in the cod-end solidly full of fish and weighing about three tons, two tons of which is fish.

By means of a steel cable hooked into a thimble on the splitting strap and running to the winch, these fish are raised above the rail and swung over the deck. This terminal pocket thus suspended is snubbed to the rail by two lines to prevent its swinging and it appears as an enormous egg almost two meters in diameter and 2-1/2 meters high, enclosing 4 cubic meters of fish.

A man reaches under this pocket, releases a special knot and the fish pour out into a special pen to receive them and prevent them from sliding about the deck. The cod-end, immediately closed, is put back into the water with the lengthening piece and all the fish it still contains. The lengthening piece is raised, filling the cod-end which is again cut off by the splitting strap, and the operation is repeated. This is continued until the trawl is empty.

For an acceptable yield in Newfoundland waters, the catch should have to be split at least three times. Below this limit, the trawler seeks elsewhere for greater concentrations of cod. A good average catch requires six splittings. But the amount of fish may be much greater than this. Twenty-four splits of a catch are not exceptional. There is then 40 tons of fish in the trawl, a volume exceeding 80 cubic meters caught in one haul! At the mercy, at the end of the trawl lines, of the sharp rollings of the vessel, undergoing, moreover, the enormous strain of hauling by the winch, the trawl then is in great peril, and its preservation demands a consummate science on the part of the captain. The weight and volume of fish to be landed on the deck poses another problem involving the security and manoeuvrability of the vessel, the solution of which admits no error.

In Greenland waters, toward the middle of October, at the time of departing concentrations of cod before the cold waters in the depths, the density of fish becomes such that the trawlers which have the opportunity go there in order to profit from such quantities of fish after 15 minutes of towing! Then, suddenly, the rear-guard of the cod goes away and not a single cod remains.

When the trawl has been emptied, part of the crew culls the fish. The cod are thrown in pens together with other fish to be saved for freezing. All the rest, comprising a quantity of excellent food fish, but not usable by a great fishing trawler, are thrown back in the sea. It is rare when a ton of fish caught by the trawl supplies 250 kilograms of cod.

While the culling is going on, the trawl is quickly examined by a repair specialist, the net mender. If the diagnosis is favorable, it is immediately put over for a new haul. If not and some damage has been suffered, the crew of net menders goes to work.

The chief net mender is an important person aboard ship, for it is upon him and his good judgment that the fishing equipment stays in good condition.

These decisions have to be made quickly, for, on his judgment, the captain awaits his immediate orders: to continue operation of a damaged trawl if it can be quickly repaired; or to use a part of the crew to get out another trawl from the storeroom and to make an exchange.

So the captain depends on the chief net mender to evaluate on first view the time necessary to make repairs of torn meshes, or to replace a section of the net with new netting. A small error in dimensions or in repairing the meshes, when the net is heavily loaded, may result in a great loss of fish and requires careful repair with the sacrifice of precious time.

Processing the cod caught in great quantity becomes a problem in order to get them out of the way before the next catch comes aboard without breaking the rhythm of fishing. It is, nevertheless, broken when huge hauls come aboard.

The processing follows rigorously the same procedure as on the sailing vessels. But, on the trawlers, the captain and his officers, are sufficiently occupied with navigational problems, surveillance of the fishing, and the execution of general procedures. A strictly professional crew of four or five splitters and salters who do nothing else, three sailor gutters, an apprentice seaman header, and a ship's boy washer being assistants to each splitter. The work goes on night and day, powerful lights being distributed around the operations. In summer, in the high latitudes of Greenland, Spitzbergen, and the Barentz Sea, perpetual daylight makes lighting unnecessary.

Liver oil is carefully processed aboard the trawlers. The earliest trawlers treated the livers by direct steam action which dissociated and broke down the cells. Oil thus treated floated to the surface of the metallic vats in which the livers were processed. It was drawn off and put in barrels. Oil thus processed was only of industrial quality.

Aboard modern trawlers, oil is extracted by the Norwegian process by heating in double boilers warmed by steam. This was first done under steam pressure. Now it is carried out at atmospheric pressure, at the temperature of boiling water. A number of vitamins which do not stand up under temperatures of steam pressure are thus saved. A still better method for conserving the vitamins is to process the livers by grinding them cold and then centrifuging, a method used sometimes by the Norwegians.

The apparatus used for extraction at atmospheric pressure is a great vat in which the steam enters the lower part. An emptying pipe conducts the liquid resulting from the breakdown of the livers, a mixture of water and oil, into a decanting vat situated a little below its level. From there a Japy pump, sometimes an electric pump, pumps the decanted oil to vast compartmented cisterns, with a total capacity of 30 to 40 tons. Oil thus processed is destined for medicinal use.

In general, saving of roe by the trawlers is still only at its beginnings. Preparation aboard raises the same objections as on the sailing vessels. Freezing for preparation ashore, at the end of the season, is a solution from which the vessels may eventually profit because of the high price of a well-prepared product.

In addition to holds for salted cod, the modern trawlers of the great fishery are provided with freezing rooms able to receive a hundred tons or more of fish. They are thus in a position to hold some of the excellent fish formerly thrown back into the sea, preserving it in a fresh-frozen state at -20° . Conservation by freezing is used for the haddock which is often caught in great quantities. Haddock thus preserved is finally processed on land as "haddock" (finnan haddie) because of the rapidly increasing demand which this product has received, more and more appreciated, notably at Fecamp and Lorient, with great success.

Halibut is also preserved by freezing to be eaten fresh. This excellent fish, so esteemed in England, is only of insignificant demand in France. Almost all the halibut caught in the North Sea by the French fishery is absorbed by the market at Lille. At Paris, where this fish is practically unknown, the small quantities which are sold at Halles market are bought by restaurateurs who invariably sell it as turbot.

It is to be hoped that halibut will finally find the place it deserves in the French market, to the benefit of consumers as well as the fishermen and outfitters, as its sale would result in a new source of greater profit above that of the cod.

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While the outfitting of the last sailing vessels of the great fishery always preserved its craftsman aspect, the trawler represents an industrial type of

fishery. The catching of the fish is here the result of collective effort, making impossible paying for work according to individual production. Thus the "charte-partie" which defines conditions of employment aboard the trawlers is substantially different from that used for the sailing vessels.

Participation of the crew in the yield of the fishery is maintained on a share basis, which applies to everyone, of a fifth of the net product of the fishery. This fifth is divided into a definite number of parts, of which a fixed number is allotted to each man of the crew, according to his specialty, the chief net mender, for example, receiving two parts while the cabin boy receives a half part.

But aside from the shares, monthly advances, a minimum guaranteed salary, are paid before departure. The trend is paying monthly guaranteed salaries, diminishing more and more the sharing of the crew in the season's catch and toward a fixed salary.

In the period between the two wars, the industrial fishery of the trawlers replaced at an increasing rate the ancient craftsman fishery of the sailing vessels of Newfoundland. These died out by failure to meet the new demands.

While in 1913, 235 French sailing vessels fished on the banks, this number was only 129 in 1924, the peak year between the two wars. In 1930, there were only 74 three-masters. In 1939, at the beginning of World War II, there were only 11. When the fishery was resumed at the end of the war, the old three-masted French schooner fishery was only a memory.

During this period, the number of trawlers passed from 28 in 1924 to 40 in 1939, at the same time that their carrying capacity doubled.

The principal cause of this rapid evolution in fishing methods is attributed to the enormous difference in the yield of this fishery compared to the line trawl fishery.

A modern trawler of the great fishery produces 30,000 quintals (hundred-weight) of salted cod while the sailing vessel produced annually only 6,000 quintals at the best. The crew of a trawler is, on the average, 55 men, while the sailing vessel produced only 187 quintals, or about a third.

One must, however, consider the enormous difference in cost of outfitting for the two methods of fishing.

Moreover, wastage is infinitely greater on the trawler which actually throws back into the sea, without any profit, two thirds by weight of the fish caught, while on the sailing vessel, in which the selection is done at the origin, many fish in the "trash fish" category do not take the hooks baited for cod at all, or do so only occasionally. This advantage, properly exploited, could become a weighty argument in favor of line trawl fishing which catches, moreover, by comparison to trawling, a clearly superior product.

If the great Portuguese fishery remains faithful to the handline, of a yield inferior to the line trawl, for the principal reason that it is cheaper, one sees at the same time on the banks, the American and Canadian fishermen using a particularly expensive technique, but profiting from the line trawl fishery, the inverse of the Portuguese fishery, and offsetting the difference in cost by means of modern procedures and materials.

One can only affirm that, under these new conditions, the French line trawl fishery, in its artisan form, has said its last word in Newfoundland. As much from a sociological point of view as well as from the point of view of the professional status of the crews, one must regret that this is so, for the average dory assured, for a season two months shorter, a return greater than that coming to a sailor on a steam trawler; and this gain was still greater for the head doryman. Moreover, the artisan fishery made venturesome fishermen, with initiative, daring, and personal responsibility, while the sailor in the modern industrial fishery has the greatest chance of always staying in the mass as a man "without specialty".

A little late and in a hesitant way, modernization was tried on the line trawlers, from 1929 to 1939, by a number of French vessels.

The boats used were of various types, sailing vessels with auxiliary motors characterized by double gross tonnage and carrying capacity compared to the old three-masters; and, exceptionally, steam vessels outfitted for line trawling.

These boats shipped many splitters and salters having no other duty during the fishing season, and crews specially charged with preparation of the cod under the direction of the former. Thus the fishermen, freed from the task of gutting their catch and from various other duties, had only to attend to the business of fishing proper. They could thus, thanks to the use of motor dories, carry out a much more efficient and less fatiguing operation

in their primary duties. They augmented their catch considerably, after the example of the Americans and Canadians, by underhauling their lines several times a day, rebaiting on the spot.

Another innovation of the first importance in the yield of the fishery was the installation of a refrigeration room permitting carrying a supply of frozen herring for bait.

The vessels thus equipped found themselves freed from the obligation of diverting a part of the crew from their principal function in order to get bait. Besides, they used a fresh bait which the cod greatly preferred to the more or less decomposed *Buccinus* and on which they hurled themselves avidly.

In fact, it was maintained by the captains of vessels using *Buccinus* for bait that these new vessels using frozen herring attracted cod away from their vessels toward the herring bait.

The motors of these vessels enabled rapid lifting of the anchor by means of a sturdy motor winch, giving the captains great facility in quickly going to other areas after cod in case the local fishing was poor, a course which the captains of the older line trawlers hesitated to take except as a last resort because of the time lost in raising the anchor.

Thus the yield of these line trawlers was considerably increased over that of the old three-masters. With a crew of from 50 to 55 men, these boats could catch 15,000 to 16,000 quintals in the course of a season.

The treatment of by-products of the fishery, liver oil, fish glue, sometimes roe, for which the vessels are especially equipped, adds an important profit. Besides, while at the end of the season, the freezing room is almost emptied of herring, it is advantageously utilized for storing various fish such as haddock, halibut, ling-cod, pollock, all of which bring good prices when landed.

The results of these attempts, as well as the experience of foreign line trawlers, promise the possibility of a great line trawl fishery maintaining itself and developing alongside the trawler fishery. Moreover, one must consider that there are large areas of the banks with bottom unsuitable for trawling, offering to the line trawl fishery an exclusive area of exploitation with high yields.

Rational exploitation by the two methods of fishing seems to indicate the trawlers should devote themselves exclusively to quick-freezing the fish, permitting them to supply the European continent with fish landed in a fresh state from the enormous reserves of the bank, while the line trawlers, by reason of their selective fishing, should specialize in the production of salted cod.

These vessels then, should be thought of as factory ships, utilizing all by-products of the fishery, the wastes, after the extraction of oil and glue, being used for fish meal and fertilizer. Moreover, they should have, besides a freezing room for bait, freezing holds allowing preservation in a fresh state of fish more valuable than salt cod, saving of these fish being carried out only toward the end of the season, for fish preserved by freezing holds its perfection and freshness, under the best of conditions, about three months.

Chapter VIII. Assistance to Mariners in the Great Fishery The Naval Station and the Hospital Ships

The particularly hard life led by the professional fishermen of the great fishery justifies the public and private efforts intended to ease their lot. The means employed to this end and the results are closely related to the history of their industry.

It was the Malouins who, in the first half of the 16th century, instituted medical care for the Newfoundland fishermen. This care was dispensed by the barber-surgeons shipped on the guard-boats which the outfitters equipped at common expense to assure them exclusive fishing rights on the Little North coast. Thanks to this organization, which allowed these modest practitioners to visit periodically the various bays, the fishermen benefitted, during the course of the season, from a minimum of care.

But this fortunate beginning affected only the small limits of the Petit-Nord coast. Elsewhere, on the coast as well as on the bank, medical assistance did not exist. Living a rude life often bordering on inhumanity, the fishermen knew only one law: work at any price. Aboard their vessels, sickness which prevented work was scarcely tolerated, and many were those who, from lack of care, died at their task. The encountering of a vessel of the Royal Marine alone could sometimes save the sick or injured; but this was an exceptional occurrence.

It took nearly two centuries, when Colbert established the Ordinance of 1681, for the principal measures destined to assure health protection for the crews. Still these wise provisions were not enforced until 1717.

This act marked the beginning of the era of surgeons required aboard vessels sailing on the high seas and to the fishing banks. It first fixed one doctor for 20 men. When, in the 18th, and even more in the 19th, century, difficulties of recruiting surgeons constrained the public powers to relax these rules more and more, the establishment of a Naval Station at Newfoundland, following the disastrous treaty of 1763, was a happy compensation for this deficiency.

By extension of their initial mission, which was to maintain respect for their fishing rights on the French Shore as well as on the banks, solemnly recognized by the text of the treaties, these vessels brought everywhere to those they were protecting, the most generous moral, medical, and material

assistance. The priests which were embarked aboard them held to the honor, even though their duties had never been exactly defined, of devoting themselves, body and soul, not only to the crew of their own vessel, but always and everywhere, to the thousands of fishermen who, far from family and home church, suffered a severe moral isolation. In the 18th century, the Order of Saint-Francis supplied the Naval Station, as well as the royal navy, most of the priests. Under the regime following the French Revolution, lay priests succeeded the religious ones. Both were, in general, entirely devoted to their duties; they were men of action, in whom a rough and ready exterior did not conceal a high conscience in their mission of comfort and guidance. They were an eminently beneficial influence among the fleet of the great fishery.

Medical aid played, from the origin of the Naval Station, a basic role in its functions, for the surgeons of the royal navy, shipping on the guard boats sent to Newfoundland, as well as the doctors of the national maritime, which succeeded them, were true "doctors", on the banks and on the French Shore. Doubtless it was beyond their power to treat all the sick in the enormous population of fishermen in Newfoundland. They more or less attempted to diagnose the case in order to enforce the necessary rest and to prescribe to the captain the treatment to apply. In more serious cases, the man was taken aboard the vessel and transferred to the colonial hospital at Saint-Pierre, on condition that the case was not infectious.

Besides this work, which they carry out as official functions, the doctors shipping on the vessels of the Naval Station also inspect the quality and quantity of food on the fishing vessels, as well as checking the hygienic measures prescribed by law.

The medical chest has been, since the beginning of this activity, one of the principal objects of inspection. Until recently these were full of surprises, for the captains considered as perfectly superfluous this chest of instruments and products the use of which escaped their meagre knowledge. Besides fraudulent substitutes, which were common in the old days but which had become practically impossible under the regime of inspection at departure, it happened that the medicine chest, emptied of its contents, was used for all sorts of unforeseen purposes. One cites the relatively recent case of a captain who was using the chest in his care as a box for his dog! One should add that acts of this nature are exceptional today, most of the captains making good use of the medical supplies with the aid of the manual of "Medical

Instruction", called "paper medicine", in which is especially written up for their use the proper application of the medical and surgical materials at their disposal.

It was to combat these deplorable customs which constituted, aboard the French sailing vessels, a flaunting of the most elementary principles of hygiene that the commanders of the naval station and their delegated authorities had to constantly employ their powers of general surveillance. Many reports have been written on this subject, such as that of a marine doctor who, after numerous visits on the fishing vessels, wrote:

"Hygiene is the least worry of the bank vessels. It is unknown. A complete absence of cleanliness, neatness, clean air; in summary: foulness pervades to an unimagineable degree. The cod is first; it alone receives the most minute care.

"As to the crew quarters: a dark hole, stinking walls, dirty floors, no provision for light and air from the exterior, whence escapes an indescribable odor which stops you in your tracks.

"There are 15, 20, 25 men holed up in a space always too small for the number. They wear their dirty clothes which soon give off an odor as thick as the fog outside; here they take their meals, emptying on the floors the dregs from the soup bowl or glass of wine, the bones of fish, doing even more, perhaps, in order to avoid going up to the deck at certain hours of the night. The bunks are dark holes, the mattresses never exposed to the air, reeking with blankets perpetually damp. The floor is covered with a slimy layer which is never cleaned. A cabin boy is officially assigned this duty; but, once on the bank, he works on the cod like everyone else, and the men, returning aboard from the dories, go to their bunks at once and learn quickly to ignore the dirtyness everywhere."

Doubtless one must admit that the pursuit of the fishery on the bank, with the work of preparing the fish, is hardly compatible with neatness on the vessels. If one finds, sometimes that good conditions exist on the smaller American and Canadian vessels which are subject to the same conditions as the French, one can say that the brief trips of these vessels permit them to be kept in proper condition. But on the Portuguese vessels which have a fishing season as long as the French vessels, and which are equally large in

tonnage, which have larger crews because of the use of handlines, one finds, in spite of the crowding, careful attention to and realization of hygienic conditions which cannot be criticized. In their clean galleys, the fishermen eat on a clean cloth, frequently washed. One cannot then accept the principle that foulness and suspension of all the rules of hygiene is a necessary condition accompanying cod fishing.

Thanks to the patient efforts of the commanders of the Naval Station vessels and to their collaborators, the Workers of the Sea, who, from their founding, have taken an effective course, and thanks equally to the custom of substantial prizes to the captains and crews of vessels maintaining a satisfactory state of cleanliness, this deplorable condition has tended, more and more, to become a thing of the past. One even finds aboard the more recent motor trawlers used in bank fishing, remarkably comfortable quarters for the crews.

In spite of the evidence of service rendered to the fishermen by vessels of the National Maritime, a new step remains to be taken to give aid on the fishing banks its maximum effectiveness.

For these vessels, the mission of surveillance which is the reason for the Naval Station, is primarily that of rendering assistance. Besides special arrangements not found on a warship, these vessels have varied duties: protocol visits and calls at foreign ports, justified by the fact that they alone officially carry the French flag in North America where the memory of the mother country is still very much alive; carrying out military and oceanographic functions during the course of cruises on a predetermined itinerary with a minimum of detours. Thus these vessels, obliged to follow a program fixed in advance by ministerial instructions and spending long periods on the banks, cannot devote themselves entirely to rendering aid.

Private initiative alone is free from these obligations and restrictions and can undertake actions exclusively aimed at assisting the fishermen. It was for this reason that the Society of Workers of the Sea was founded.

Priority in organizing assistance at sea goes to England, and it is curious to note that this undertaking was started by the necessity of combatting the crimes of an enterprise, arising in the second half of the 19th century, the action of which has been justly labelled "contre-assistance." This was

practiced by unscrupulous merchants who outfitted, generally in Holland ports, the "Coopers". These vessels, laden with adulterated whiskey, contreband tobacco, and licentious publications, plied among the fishing fleets of the North Sea, realizing, among the crews, scandalous profits.

Good arises from excess evil. In 1880, a vessel named "Anti-Cooper", was outfitted in England and sailed to the fishing grounds to sell at cost price, without profit, tobacco, articles of clothing, food, linen, and other ordinary necessities. The success of this first attempt led, the following year, to the foundation at London of the "Mission for Deep-Sea Fishermen". After quickly ruining the "Coopers", the undertaking went on to real assistance, in carrying to the fishermen, with a substantial backing, medical, moral, and religious benefits. Its field of action was localized on Dogger Bank and the fishing grounds off Jutland, places where the fishermen sojourned, at that time, for trips of 6 to 8 weeks. Thus, in some years, as many as ten vessels were outfitted for this work. From the medical point of view, some of the vessels were outfitted as hospital ships; others functioned as supply ships.

In France, this example inspired the founders of the "Society of Workers of the Sea". This organization was born in the last days of 1894, under the guidance of a retired officer of the Marine, M. Bernard Bailly. It stated its purpose as "carrying material assistance, medical, moral and religious, to French sailors and those of other nationalities." To attain this end, its prospectus states: "it outfits hospital ships to cruise the fishing banks at appropriate seasons; each of these has a doctor and a priest. These vessels respond to calls from the fishermen, carrying to them the necessary help, and are entirely consecrated to their service. The Society founds also homes of refuge for mariners."

The appeal to the public generosity, launched in all France by powerful means of publicity, having been extended, the Workers of the Sea started, without delay, along the road to effective realization of its ends. In the year 1895, at the same time the keel was laid for the first hospital ship, real estate was acquired at Saint-Pierre which was immediately prepared to receive fishermen stopping at this port. They were then very numerous, for colonial outfitting was, at that time, at the height of its development, and most of the vessels outfitted in France made at least one call at Saint-Pierre before beginning the first fishery.

By spring, during the three weeks of outfitting the colonial vessels, nearly 5000 fishermen were gathered at Saint-Pierre. Most of them returned frequently, for the Saint-Pierre vessels made, on the average, six trips during the fishing season. Also, there was always at Saint-Pierre a great many convalescents, and lost sailors coming from here and there on the bank in their drifting dories, who were waiting for their vessels to return, a wait sometimes of 15 days or more. Here also were the shore workers brought from France, mostly young men 15 to 18 years old. All this floating population was happy to find, at the end of the day, a home wide open for them which offered, besides various games, journals from home and writing materials, all without charge.

This "Family House" at Saint-Pierre, directed by a priest, played an important role in organizing the work of aiding the fishermen. It was the center of an ardent crusade against alcoholism, with the concurrence of the commanders and doctors of the vessels of the Naval Station.

Alcohol was, at that time, a terrible scourge on the banks. It was considered, by the captains as well as the fishermen, an indispensable cure-all for cold, the fatigue of back-breaking labor, low morale, as well as for all kinds of disease. On board, besides two quarts of wine and unlimited cider, each man received a minimum of 6 servings of rum, a total of about a pint per man absorbed daily. Some inveterate alcoholics would accumulate two or three days rations and drink it all in a few hours! At Saint-Pierre it was even worse, and deaths, with or without drowning in the harbor, after incredible drinking sprees, were considered commonplace.

A statistic determined by Workers of the Sea established the quantity of alcohol which was landed at Saint-Pierre during the fishing season of 1906, without including the alcohol destined for the colony itself and for the colonial vessels, and taking count that vessels outfitted in France had their own liquor supplies already aboard. Omitting wine, cider, and beer, they found a total of 160,000 liters of alcohol and strong alcoholic beverages, in casks, bottles, and cases! "A veritable volcano, capable of blowing up a city," concluded the author of this frightening statistic.

The success of the "Family House", where were distributed excellent health drinks, led to an important decrease in the consumption of alcohol

by the fishermen passing through this port. The House registered 41,300 people during the course of one season. Numerous anti-alcoholic tracts were distributed, and a periodical, "The Newfoundlander", pursued the same theme in its editorials.

This campaign received support by the elaboration of administrative regulations by which vessels in the great fishery were not authorized to take on a quantity of alcohol exceeding that corresponding to a daily consumption of about two ounces per man.

The "Maison de Famille" at Saint-Pierre ceased its functions in 1931, not because of failure in its work, but because of the extinction of the colonial vessels and the rare landings of the metropolitan sailing vessels and steam trawlers.

Aid at sea, on the fishing grounds, constitutes the primary aim and the most costly activity of the Society of Workers of the Sea. April 20, 1896, its first hospital ship, the Saint-Pierre, sailed from Saint-Malo for the banks of Newfoundland, where 138 French vessels and 200 Saint-Pierre two-masters were commencing the fishing season.

Since that time and until the beginning of hostilities in 1939, seven hospital ships, sailers, mixed sail and steam, and sail and motor, have been in service during 43 seasons to assure assistance from Newfoundland to Iceland and Greenland.

These vessels are arranged to receive thirty to fifty patients, with a great sick bay and isolation cabins, examination rooms, and complete surgical equipment. The priest has a chapel opening on the sick bay.

Usually patients who are hospitalized are landed, at the end of each cruise, at Saint-Pierre; sometimes they are returned to France at the end of the season. In emergencies, surgical operations are performed aboard.

In the course of 43 seasons of assistance, 23,000 contacts with fishing vessels have been registered. Most of these vessels have been visited, and comfort carried to them by the priest and the doctor. The Postal Bureau official assumes, with the National Maritime station, charge of

mail on the banks, with headquarters at Saint-Pierre. For the fishermen, often isolated for eight months of the year, far from their home and home church, this contact with family is of great moral importance.

Since the foundation of the Society of Workers of the Sea, the priests on the banks have thus delivered 1,168,000 letters, sometimes effecting these deliveries in bad weather at the peril of their lives. In addition, since the installation of radio in 1921 aboard the hospital ships, 22,270 private telegrams, or radio cable-grams, have been transmitted at a very moderate fee.

With radio, one should note an important innovation in the season of 1936: radio telephones on the bank. The sending station which was installed on the hospital ship then in service, the Saint-Yves, was given the picturesque and appropriate name: "Radio-Cod."

The transmission of "Radio-Cod" provided the sailing vessels not only local, national, and international news, but also professional data which until then had been entirely lacking: time signals, weather bulletins, alerts for lost dories, daily information on the position and course of the hospital ship, permitting neighboring vessels having need of assistance to intercept it. The radio telephone also constituted a means of rapid retransmission of messages from outfitters, a means of rapid liaison between outfitters and captains.

The sailing vessels of the great fishery which did not have electric installations were provided with special receivers operating on batteries to permit them to receive these broadcasts which contributed greatly to the morale of the crews, at the same time carrying to the captains messages of importance.

31,452 days at sea, 13,052 cases at sea, 7,815 prescriptions of medicine describes the activities of the doctors on the hospital ships, and there is hardly a season during the course of which the life of one or many men is not saved thanks to rapid medical and surgical treatment.

As a general rule, the hospital ship is in communication, in the course of each cruise on the banks, with all the French vessels it encounters, for, if medical assistance is not required, it is rare that there is not mail to be

delivered. But its assistance is readily offered to all other vessels, whatever their nationality, and it is given whenever the need is made known. Their sick and injured are given the same care and hospitalization as the French fishermen. Since its foundation, the Workers of the Sea have taken as a motto the magnificent profession of faith of Pasteur: "One does not ask the unfortunate: 'What nationality, what religion are you?' One says to him: 'You suffer and that is enough; come to me and I will help you.'"

Although the doctors on the hospital ships do not possess the authority invested in the commanders of the Naval Station vessels, they have contributed greatly to a better observation of the rules of hygiene aboard the Newfoundland vessels.

Finally, besides the mission of assistance for which they were especially conceived, the hospital ships have rescued and saved, in the course of their incessant cruising on the banks, 426 fishermen shipwrecked or lost at sea in dories. During the season of 1935, under the polar circle off Greenland, the doctor of the Saint-Yves was able to bring back to life two men found almost frozen aboard a drifting dory.

Chapter IX. The Cod Commerce and Industry

Fresh and salted cod is consumed in great quantities in the regions bordering the places of great production: Norway, Great Britain and Scotland in particular, Canada, Newfoundland, and northern United States. But that which gives this industry and commerce exceptional importance is outside this regional consumption. This fish, caught in the cold seas, finds, after suitable preparation, a market of the greatest importance among the people living in the warm regions of the eastern hemisphere.

This is because the quality of its flesh is such that it is readily preserved by salting and drying.

From time immemorial, the cod has held a place of first rank in the diet of certain countries where the high temperatures and lack of rapid transportation make impossible the distribution of fresh fish, and where it is an advantageous substitute thanks to this quality of conservation. It is thus that long before the origin of cod fishing in Newfoundland, dried cod was imported in great quantities in Portugal where it was, and still is, a basic food item. The warmer regions of France were equally, since earliest times, centers of great cod consumption, and they remain today, by habit, those where this trade is still most active. In the Middle Ages and during the following centuries, the only two sea fish which were important in the interior of France were salted or smoked herring in the north and salted cod in the south.

In the temperate regions, a great deal of cod is sold green-salted, that is, as salted aboard the vessels without further drying.

The origin of splitting and salting cod, such as is still practiced aboard the modern trawlers, is lost in the darkness of the past. In France, the splitters and salters were working, without any doubt, prior to the 12th century, the same kind of work which their distant disciples follow in the 20th century.

At the time of unloading, the green-salted cod, as soon as taken from the hold of the vessel, are sorted into three categories: large, medium, and small. Gathered in piles of determined weight, they are transported to establishments where they are further treated. First washed and drained, they are piled in racks or hangars with dry salt, or preserved in vats in a saturated pickle.

Part of the fish placed in dry salt is sold without further preparation for local consumption. But it is always after undergoing the operation of repackaging, that green cod goes into commerce.

For repackaging, only the cod weighing more than 1.8 kilos are used. The fish kept in dry salt are carefully brushed, while those in pickle are minutely washed by hand and finally left to drain for 24 hours. The cod are then carefully packed in barrels with new dry salt. Thus a choice product is obtained but destined entirely for home consumption, this kind of preserving lasting only about 3 months.

Part of the green cod is also prepared as boneless fillets. After brushing, fillets are cut off, separated from the skin and larger bones, then packed in small waxed cartons. These will not stay in a good state of preparation longer than two weeks. In France, this process is done only at Fecamp.

Drying is obligatory for cod which have to be preserved for long periods, and, in all cases, where it is destined for warm climates.

Drying cod is carried out by two distinctly different methods. One, the product "stockfish", requires only preliminary salting; the other which supplies the "klipfish" by various techniques, is related to the state of preliminary preparation of the green-salted cod.

The stockfish, the preparation of which can only be carried out in cold regions with freshly-caught fish, is actually only practiced in Norway.

For this preparation, the cod, landed the same day it is caught, is split to the anus, opened and carefully washed with sea water inside and out. The cod are then fastened in pairs by the tail and hung over poles in the open air, these poles being sufficiently thick so the two fish do not touch. Once the process is started, the fish remain exposed to the air, whatever the weather, until drying is finished.

As drying proceeds, the cod are split and most of the spine removed. The cod in pairs are separated for this operation after which they are allowed to dry individually, being laid across poles on saw-horses.

When the fish is perfectly dry, they are packed in rectangular bales of 50 to 100 kilos, bound with wire.

Besides the cod consumed fresh or sold green-salted, as well as the stockfish thus prepared in Norway, the rest of the product of the fishery, by far the most important part, is delivered for consumption as klipfish.

Like splitting and salting, drying of cod has a very long history. The first fishermen who came to carry on their industry on the coast of Newfoundland at the beginning of the 16th century knew the technique perfectly. The method has undergone numerous modifications and improvements.

At Newfoundland for the fish processed by the shore fisheries, in France for the green-salted cod brought back by the bank fishermen, at first only flat drying was done, the fish being spread under the sun for this operation, as on the Newfoundland beaches to receive the successive "sun-nings."

In the French ports receiving green-salted cod, where the boats returning from the banks unloaded at once their entire cargo of cod, flat drying posed an enormous problem every year. At Saint-Malo, where the space was restricted, they dried cod, in the 18th century, everywhere: on the beach, in the parks, and even on the stones in the cemetery!

The boats going to fish the Newfoundland coast becoming more and more numerous, there were not sufficient number of good drying places for everyone. They were forced to utilize the sandy beaches, or even muddy shores, little suited to drying cod. The fishermen then installed, 2 or 3 feet above the ground, wooden racks of sapling. On these the cod were laid for drying. Sometimes these racks were replaced by frames on which old netting was stretched. These were usually inclined in such a way the cod did not receive the full rays of the sun. At Saint-Pierre and Miquelon, the cod were treated in the same way as on the coast of Newfoundland.

In France, drying in open air was subject to many improvements, the principle one, during the 19th century, being vertical instead of flat drying, the cod being hung by the tail on rods supported by wooden horses. This procedure had several advantages.

The method of drying gave good results only in warm, dry regions. It was because of this that Bordeaux and Port-de-Bouc, near Marseille, became, during the 19th century, the two great centers of preparing cod and Bordeaux acquired almost exclusive lead in its commerce.

However, even under favorable climatic conditions, drying in open air has serious disadvantages. A too hot sun or an unforeseen shower can spoil a whole batch of cod. Besides, the time of drying is subject to many variables: the intensity of the sun, the humidity of the air, the direction and force of the wind. Finally, a relatively important manoeuver is necessary in order to protect all the stock of cod in treatment in case of unfavorable weather conditions.

These considerations motivated the introduction in France, at the end of the 19th century, of artificial drying. One of the principal consequences was that it permitted the northern ports to become, in their turn, great processors of the cod caught by their vessels.

The first artificial drying installation in France was at Bordeaux. This new procedure rapidly became general among the drying places at Begles; then it extended to the other great cod ports.

In the modern installations, such as those at Fecamp, drying is accomplished by passing through a tunnel. After washing, the cod are hung by the tail on racks carried on small carts. They are allowed to drain for 24 hours. The carts are then pushed into the tunnel where they advance progressively. The tunnel is 25 to 30 meters long, 3 meters wide, and 2 meters high. At the extremity opposite the entrance, an air fan and a battery of radiators is located, their heat not exceeding 35°. The cod are thus slowly warmed to a temperature of about 30°. Their time in the tunnel varies from 3 to 48 hours according to the amount of drying required at their destination. They are then ready for packing and shipping. According to the amount of drying, the cod have lost up to 35% of their weight.

The number of dryers for cod in 1938 were 2 at Gravelines, 1 at Boulogne, 5 at Fecamp, 2 at Saint-Malo-Saint-Servan, 1 at La Rochelle, 29 at Bordeaux; the cod industry had disappeared at the Mediterranean ports.

Fecamp and Bordeaux are the most important ports for receiving and processing cod. At Fecamp, artificial drying only is used, while at Bordeaux there is still drying in the open.

At Saint-Pierre-et-Miquelon, certain places employ artificial drying by the Witman method which involves preliminary treatment of many hours under steam pressure.

Another procedure which has been tried in France consists of compressing the cod between cotton sheets which absorb the moisture. While giving better results than the other procedures, it has generally been abandoned because of the expense.

In the great Canadian fisheries in the Gulf of Saint Lawrence, the cod is generally treated by the Gaspé method. The fish are placed in hangars for "sweating". When the moisture appears on the surface, they are put in the sun to dry again. Alternate sweating and drying are repeated until the cod becomes as hard as a board.

A certain quantity of dried cod is especially prepared for American tastes. Thus, at Newfoundland, they prepare boneless cod, shredded cod, stripped cod, and cod in blocks. These products are exported to the United States and to Canada in soldered boxes weighing 10, 20, and 30 pounds.

Halifax has a specialty of steam-prepared cod. The fish is skinned and carefully washed; then it is cooked, boned, chopped, and reduced to a fibre resembling fine wool. In this state, it is placed for 24 hours in a drying kettle at 120°, then, after pressing, it is packed in airtight boxes. The contents equal more than three pounds of green cod.

Shore operations also include by-products such as liver oil for medicinal purposes. Generally this consists of purification before selling to the pharmaceutical houses.

These operations are usually simple physical treatments, for purification must not affect the therapeutic activity which the oil already possesses and without which it would not be of medicinal use.

The unloaded oil remains, if there is room, in the casks in which it was decanted. Finally it is put in a tank in a room cooled to -3° , where it is processed by a filter press in the same room in order to remove, according to the requirements of the Code, the fats which readily congeal.

From the cold room, if the oil requires further purification, it is filtered through fuller's earth in a tinned mixer at room temperature, and refiltered for the last time. Then it is put in casks or directly into bottles.

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The Norwegians, with their celebrated Lofoten fishery, hold the first place in the cod industry. Their production is characterized by great irregularity; in 1912 it attained 460,000 tons, then falling to 141,000 tons in 1916. The average annual yield is 250,000 tons. England follows with 160,000 tons. It is to be remarked that the English are not interested, with the Norwegians, in the Newfoundland fishery. They fish in the northern waters of the United Kingdom and its archipelagos, in Iceland, and in the North Sea. Canada is next with 100,000 tons annually, then Iceland, Newfoundland and France. The modern Russian trawlers also have an important fishery in the Barentz Sea and the territorial waters off Murmansk. Their production is not known.

Like the Norwegian fishery, the French fishery is characterized by great irregularity with, however, less violent fluctuations. In 1938, a year of very good production, it attained 60,000 tons, of which 46,000 tons was from Newfoundland and 10,000 tons from Greenland where most of the sailing trawlers spent the season. In addition, 2,774 tons of liver oil were landed.

Most of the producing countries export the greater part of their catch. Norway and Newfoundland are the greatest exporters, the first principally to Spain, Italy and Portugal, the second to Portugal and the warm regions of the American continent. England consumes much more than she exports.

France nearly balances consumption with exports. The latter are to Italy, Spain, Greece, Central America and the French colonies, principally the West Indies and Reunion. This last colony (east of Madagascar)

is, without doubt, among the important centers of cod consumption, being farthest from where the cod is caught. It is unusual because of the unexploited fisheries in the Saint-Paul and Amsterdam Islands nearby in the Indian Ocean, which are able to furnish great quantities of a fish commonly called "false cod" which can be prepared the same as the cod and which is perfectly able to replace it.

Exports are in varied forms, according to the customs of the clientele. For France, green cod repacked in dry salt is shipped in barrels of 125 kilos. Dry cod is packed in sacks or under straw mats.

For shipment to more or less distant regions by railway and by sea, packing in sacks is used for Spain, under straw mats for Italy, in barrels of 50, 100 and 200 kilos, and sometimes in boxes of 50 kilos for the colonies. Certain markets demand shipment in boxes during the summer because the cod is then better protected, but will accept packing in bags or under mats during the winter.

In France, cod dried at Newfoundland was formerly received at the different ports of outfitting from Dieppe to Saint-Jean-de-Luz. Green cod brought back by the bank fishermen was sold everywhere from Nantes to Bordeaux. During all the 18th century, Nantes, benefitting from its situation as an estuarine port at the mouth of the Loire, then navigable, provided green-salted cod to all the large interior cities where the consumption was very considerable.

During the 19th century, Bordeaux became the national cod market while Nantes became less and less important.

Bordeaux created this situation without ever having been, until very recently, a great port of outfitting for the cod fishery. Its outfitters, lacking marine fishermen, only rarely sent boats to Newfoundland. Its navigation was turned toward more lucrative traffic requiring greater capital, the products of the Indies, cotton, coffee, sugar, indigo. But if not outfitting for the fishery, Bordeaux received, since the 16th century, important quantities of cod. These were brought by the Basque and Britton fishermen who, certain of finding a market, came to sell their cargo and to take on supplies for the following season. As the bank fishery

developed, besides the dry-salted cod, greater quantities of green-salted cod were landed at Bordeaux. In the 18th century, the Dutch, Danish and English, with the French, came to sell their fish caught in Iceland and the North Sea. At the dawn of the Revolution, Bordeaux, without attaining the importance of Nantes, was the great regional market of the southwest for cod.

Green cod was shipped by river boats to the upstream villages; part of the dried cod was exported to the colonies, notably the West Indies.

In the second half of the 18th century, the abundance of green cod imported to France resulted in the appearance of a drying industry. Dunkerque, Dieppe, Fecamp, La Rochelle, Bordeaux and Sete built their drying facilities almost at the same time. But Bordeaux had the advantage, over the northern ports, of a more favorable climate. Its drying places were erected in the suburbs of Begles, above the stone bridge marking the head of navigation on marsh land of little value.

Since then cod traffic has not ceased to grow. The birth and development of a railroad, in the 19th century, gave a new impulse to this commerce, permitting Bordeaux to export cod from Begles to all parts of France, then to Spain and Italy. About 1880, the position of greatest exporter in France was established. It was increased in the following years by the progressive decline of drying at Newfoundland which disappeared completely with the abolition of the privilege of the French Shore in 1904. In 1907, Bordeaux received 70 percent of the production of the French fisheries and its commerce in cod was uncontested.

At this time, of 37 French drying places, Bordeaux had 30. But, later, modernization of the cod industry has diminished this supremacy. In the period between the two wars, Fecamp, the great northern cod port which had substituted the ancient sailing vessels for the modern trawlers, built modern plants with great capacities in air-conditioned driers. Bordeaux thus lost the advantage of its climate favorable for open-air drying.

At the same time, its supremacy was broken by the acceleration of truck transport which permitted distribution, in good condition, to every part of France, in consequence, a greater fraction of the cod going to these

markets; equally, the northern ports are actually better situated than Bordeaux for exporting their production, by sea or by rail, toward the regions of great consumption in the mediterranean basin.

Thus Fecamp recently has taken first place as a cod-landing port in France, surpassing Bordeaux. In 1938, the quantities of cod landed were 23,000 tons at Fecamp, 18,000 at Bordeaux, and 17,000 at Saint-Malo. One should note, however, that the greatest fishery is realized by the Malouin outfitters, with 25,000 tons brought back from Newfoundland and 2,300 tons from Greenland. The Bordeaux trawlers have, for their part, captured 10,500 tons at Newfoundland and 2,500 tons at Greenland. It is among these Bordeaux trawlers of the great fishery that one found, at the beginning of the war, the largest vessels of the type anywhere in the world. These superb vessels actually have only a commercial and administrative attachment to their port, being manned by Brittons and Normans. They do not contribute less to maintain at Bordeaux an important cod industry in which this port has recently regained indisputed supremacy and which, with Fecamp and Saint-Malo, represents almost the total for France.

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Since the beginning of exploitation of the Newfoundland region at the dawn of the 16th century, the great cod fishery has represented a very important factor in the economy of France, and has provided a living for many families. Besides, its crews, which have surpassed 15,000 in some years, always constitute a most solid reserve for the French navy.

Thus is justified the constant solicitude of the public authorities for this industry, and their care in assuring its maintenance by efficient protective measures.

When the king of France ruled in the northern region of America and in the lands neighboring the places where cod were caught, the French fishery found itself in a privileged situation by comparison to the exploitation by foreign countries. Outfitting for Newfoundland was a great remunerative industry which had no need for assistance and asked none.

The situation changed with the Treaty of Utrecht, in 1713, giving British domination in Newfoundland and, later with the treaty of 1763 which removed all French possessions in North America.

In this new situation, the Americans and English colonists at Newfoundland, Cape Breton, and Canada, fished close to their coasts, by means of small vessels which returned frequently to port for landing their catches and renewing their bait, while the French fishermen had to support, at a great distance from their bases, a very much more expensive outfitting. The cod cost them much more than it cost those fishing on the spot.

These conditions, which put the French cod industry in an unfavorable situation compared to foreign competition, were the origin of the traditional aid given them since by public authority under the form of cash bonuses and exemption from taxes.

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The institution of bonuses allotted to outfitting for the great fishery began in 1767, the year in which Louis XV decided to accord a bonus of 500 pounds to all French vessels which went for cod to the coast of Newfoundland between Cape Bonavista and Saint-Jean.

This act had a special intent. This was to incite the French fishermen to retake possession of this part of the French Shore where the English were installed as masters as a result of the war. The result was negative, for the English by their tenacity in holding the shores finally won out.

It was the Ordinance of September 18, 1785, completed by the Rule of February 7, 1787, which instituted bonuses for the exportation of dried cod from Newfoundland and Saint-Pierre and Miquelon. These bonuses were paid at the rate of 10 francs per hundredweight for fish exported to French colonies; at 5 francs per hundredweight for exports of dried cod destined for Spain, Portugal, Italy, and the Levant.

In 1793, the precarious position of public finances temporarily suspended these payments, without, moreover, there being anyone to pay, for war with England forbade all departures for the great fishery. During the short interval following the Peace of Amiens, the laws of the Revolution re-established the premium at 24 francs per metric hundredweight, in consequence of the depreciation of money during this epoch. The Empire did not change this legislation which remained inoperative for lack of beneficiaries.

At the resumption of fishing, after the conclusion of peace, the Restoration government rendered, February 8, 1816, an ordinance which instituted for a century, a charter of legislation on bonuses, with the reservation of modifications which were, later, used for many legislative changes in the rates.

The encouragements to outfitting were of three different kinds: an outfitting bonus based on the number of men in the crew; a bonus for products exported to the colonies and to foreign countries; and a bonus for importation of oil and roe to France.

By the rates of the Ordinance of 1816, these bonuses were, at the time, an important aid to undertaking enterprise in the great fishery.

The outfitting bonus was paid on the basis of 50 francs for each crew member for vessels sent to the shore fishery, either at Newfoundland or Saint-Pierre and Miquelon, and of 15 francs per man for vessels sent to the bank fishery at Newfoundland, Iceland, or the Dogger Banks. This latter bonus could be claimed for each trip completed in a season.

The export bonus was established on the basis of 24 francs per 100 kilos of dried cod sent to the colonies, either from France or from the drying places at Newfoundland or Saint-Pierre and Miquelon; 12 francs per 100 kilos for dried cod sent from France to foreign countries, and 10 francs only for exports made directly from Saint-Pierre and Miquelon or from Newfoundland.

The import bonus was a payment of 10 francs per 100 kilos for liver oil, and 20 francs per 100 kilos for roe brought back to France.

The ordinance of December 7, 1829, ended the bonus for importation of liver oil.

The ordinance of February 25, 1842, established a minimum crew in stipulating a bonus of 50 francs per man to be paid only to bank vessels landing their cod at Saint-Pierre and Miquelon with a crew of a minimum of 50 men for vessels of 158 tons and above, and of 30 men for those vessels below this figure.

The law of July 22, 1851, established, on rates of the same order of those instituted by the Ordinance of 1816, the scale which would be applied for 60 years for the three bonuses by successive prorogation of 10 in 10 years.

With the expiration of prorogation in 1911, Parliament, having decided to progressively end bonus legislation, inserted a law applicable from July 1, 1911 to December, 1926, the following provision: "The rate of bonuses of all kinds will be reduced 10% from January 1, 1917 to December 21, 1921, and by 10% for a second period, January 1, 1921 to December 31, 1926."

The old legislation on bonuses was then abolished on this latter date. But, by reason of the enormous fall in production coming in 1929, the bonus for exporting was re-established in 1932. The rate, higher for green cod than for dried, in consequence favored the exportation of the latter, and led to the creation, with French methods and capital, of modern foreign driers, notably in Italy.

Legislation on salt, consumed in enormous quantities by the great fishery, because preparation requires a weight of salt almost equal to the weight of the fish, was another primary factor in the economy.

Under the old regime, heavy taxes on salt, one of the principal sources of revenue for the treasury, produced a heavy burden on the cod outfitters which was a source of constant protests from them.

Finally these grievances were heard and their first result, in the 18th century, was publication of special ordinances lifting these taxes at some ports. January 13, 1739, an act of the Council accorded a franchise of Bretagne salt to the outfitters at Granville; another act the same year accorded the same favor to the fishermen of Renneville for Brouage salt. Little by little these measures became more general.

There was not a tax on salt under the Revolutionary regime. While the Empire re-established the tax, fixed at 0.2 francs per kilogram, the law of April 24, 1806 suspended payment on all salt destined for the French maritime fisheries. This exoneration was confirmed by the Ordinance of October 30, 1816, and has remained in effect since.

These measures were sometimes insufficient to give satisfaction to outfitting for the great fishery, for French salt could attain very high prices in years of low production, and its use sometimes resulted in serious shortcomings from the point of view of quality.

Also, the ancient legislation allowed the outfitters from certain ports to obtain salt in Spain and Portugal, without any penalty on cod prepared with foreign salt. But French salt manufacture, having greatly developed in the 18th century, an act of the Council, dated May 28, 1779, revoked this tolerance.

New franchises applying to foreign salt were instituted by the Convention and by the government of Louis XVIII. For a quarter of a century, these dispositions were made the object of legislation leading to innumerable complaints, and finally the law of November 28, 1848, gave a durable status to salt regulation.

Salt used for preparing fish and put aboard for provisions is exempt from all taxes of use and consumption applying to domestic salt; from customs and entry taxes of foreign salt if it has been imported under French flag. The requirement of transport under French flag may be waived if it can be proved that it has been impossible to find French tonnage available to transport the salt.

For the Newfoundland fishery, a franchise of 90 kilos of salt for 100 kilos of salt fish landed in France is granted. If the quantity of salt used for preparation exceeds this maximum, a small tax is exacted, both for salts of French and foreign origin.

Salt used in repacking ashore benefits from the same exemption, with a limitation on the quantity according to the method of preparation, in pickle or dry.

Fish hooks of foreign manufacture used in the Newfoundland fishery and in Greenland are also duty-free for fishing vessels.

On the other hand, protection of the French fishery is assured by high taxes on imports of foreign cod to France.

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Since the 16th century, the cod outfitters for Newfoundland have employed millions of men, sailors in the great fishery from father to son. Their hard work, in making a living for their families, has brought and will always bring a very important contribution to the domestic and foreign trade of France, by furnishing a food of the first order.

Besides the shore fishery at Newfoundland, the technique of which hardly varied during the four centuries it was followed by the French, the bank fishery was first a drift fishery with handlines, then with line trawls while the vessels anchored. The 20th century produced the main evolution which led, in a few years, to the disappearance of the sailing vessels before the trawlers and substituted again movement for immobility in pursuing the fishery; the hypothesis for a future extension of modern line trawl fishing must be reserved.

Alone, the old process of salting and drying cod has remained unchanged. Specialists on modern trawlers in the great fishery make the same gestures and movements, with the same instrument, which the captains of the little caravels made in the 16th century when they split the cod, while the fishermen, installed in their barrels along the rail, raised and lowered their lines day in and day out. In the hold, the salter proceeds according to an unchangeable ritual laid down by his distant predecessors for laying the fish flat and covering each with the quantity of salt exactly necessary for its preservation.

One might inquire how the great modern fishery, using the most perfect mechanical equipment for the capture of cod, still uses, for its preservation, this ancient process of salting when storage in refrigerated holds after quick freezing, would permit the trawlers, who use them for part of the catch, to bring back their entire catch, at the end of a season, in a condition of perfect freshness.

The reason is that frozen cod is not actually satisfactory for the conditions of distribution and use by the consumer which are satisfied by dry salted cod, and which will remain this way, without doubt, for a long time yet.

Dried cod finds, in effect, because its flesh takes to this method of preparation in a remarkable fashion, a place of first importance in regions

far from production centers, submitted to high temperatures which it can stand without deterioration. In these regions, generally poorly provided with communication, transport in insulated containers at temperatures of -28° necessary for preservation of frozen fish is impossible. Even in cases where it is possible, a maximum period of 3 months between capture and use constitutes an almost insurmountable obstacle.

Even in France, distribution of frozen fish, which has to be held in insulated containers maintained at -20° by dry ice, attains importance only in a few cities, while salted and dried cod is found in the smallest localities where its conservation for periods varying according to its preparation, requires no precaution.

Thus the ancient industry of salted and dried cod is destined to hold an important role in the feeding of numerous populations for a long time to come.

Chapter X. The Colony of Saint-Pierre-et-Miquelon

The history of the little archipelago of Saint-Pierre-et-Miquelon, a satellite of the great island of Newfoundland, is intimately related, since most ancient times, with that of the cod fishery. Jacques Cartier relates that he saw on his second voyage, June 5, 1535, "the islands of Saint-Pierre," where he found "many vessels from France and Brittany." But if the vessels which came to fish the coast of Newfoundland or on the bank neighboring Saint-Pierre profitted at times from this anchorage, no attempt at colonization of this landing place was attempted, for the neighboring great island was considered as belonging to France.

The archipelago, which is separated from Newfoundland by an arm of the sea 20 kilometers at narrowest part, is made up of three principal pieces of land: Saint-Pierre, Grande Miquelon, and Petite Miquelon, the latter more commonly called Langlade.

With a length of 7-1/2 kilometers and a width of 5-1/2 kilometers, an area of 2,600 hectares (6425 acres), Saint-Pierre is much the smaller of the three. It is hardly more than an islet with a hard and rocky soil sprinkled with spiny vegetation and scrubby evergreens.

The two Miquelons are much more important with 11,500 hectares (28,416 acres) in Grande Miquelon and 9,000 hectares (22,239 acres) in Langlade. These two islands, cultivated in certain parts, support some cows and sheep, and one finds on Langlade small groves of true trees attaining a height of 6 to 7 meters.

Grande Miquelon and Langlade, joined since 1781 by a sandy isthmus 10 kilometers in length scattered with debris from the sea, extend over 43 kilometers. Until the end of the 18th century they formed two distinct islands. From 1757 to 1781, the year the isthmus formed, they were separated by a channel about 485 meters wide and 330 meters long, the depth of which was more than four meters at low tide, permitting the passage of all fishing vessels.

In 1713, by the Treaty of Utrecht, Saint Pierre and Miquelon, dependencies of Newfoundland, followed the lot of that great island and became

British possessions without any special stipulation in this regard. France retained Canada and the island of Cape Breton, and this last, with the citadel of Louisbourg commanding an excellent position, became the center of provisioning and landing of its vessels in the great fishery.

But, after the Seven Years War, France, which was dispossessed of all its American empire, sought to assure to its fishermen a port near the place of fishing. Thus the islands of Saint-Pierre and Miquelon were returned by England, on the express condition that no military establishments would be erected and that its garrison would not exceed 50 men.

July 14, 1763, the Baron of Esperance, captain of the infantry, took possession of the islands in the name of France. The first settlement was made a little later and fishing establishments were built between 1764 and 1767, which were to be the only industry. These first colonists were Acadians, who wished to stay under the French flag; they were joined by small contingents of Basques, Normans, and Brittons. They practiced a shore fishery by means of wherries of 2 to 3 tons, wider and more massive than true dories, manned by two and sometimes three men. Like the dories, the wherries navigated by oar and sail.

Salting and drying of cod was done as at Newfoundland. The dried fish were stored in sheds waiting the coming of small high-seas vessels which would export it. From 1765 to 1777, the products of the fishery at Saint-Pierre-et-Miquelon amounted, on an average, to 6000 metric hundred-weight a year.

The first residents settled in the northern part of Grande Miquelon and founded the village of Miquelon, which was the first important colony. But the anchorage at Miquelon was not a secure one for vessels. Consequently it was abandoned in favor of the anchorage at the island of Saint-Pierre. The little settlement of Miquelon remained but the commercial life of the colony concentrated at Saint Pierre.

After the alliance of France with the rebelling Americans fighting for their independence, Rear Admiral Montague, governor of Newfoundland, attacked the islands of Saint-Pierre-et-Miquelon. He destroyed the

buildings and forced the inhabitants, who then numbered between 1200 and 1300, to flee to France. A little before these events, in the same year 1778, the colony had been visited by the celebrated geographer Cassini who had fixed the latitude of Saint-Pierre. Cassini described the islands of Saint-Pierre-et-Miquelon as bare of everything, animal as well as plant.

The treaty of Versailles of September 3, 1783 returned the colony to France under full and entire sovereignty, for the government of Louis XVI had demanded the abolition of all the restrictive clauses of the Treaty of 1763.

The same year the treaty was signed, 510 inhabitants of the colony were repatriated by boats of the royal navy. A second contingent of 713 passengers sailed the following year.

Expeditions from the metropolitan ports to the bank fishery immediately followed repossession of Saint-Pierre and Miquelon. At the same time, local outfitting was rapidly resumed. Each year saw the number of long-boats, barks, and wherries increase in the colony. Most of these sailed out from Saint-Pierre but Miquelon also equipped a good number. On an islet at the mouth of Saint-Pierre harbor, the Isle de Chiens, today called the Isle de Marins, a small colony of Normans settled, enterprising fishermen who soon took the habit, during the good season, of fishing with their long-boats and barks along the coast west of Newfoundland, called, in the colony, the Gulf fishery.

In some years, the colony found itself unable to supply the number of men needed for the local fishery. This initiated the custom of bringing men from France. The fishermen engaged for the season's fishing by the small outfitters of the colony were transported, going and coming, by the vessels outfitted at the metropolitan ports of France for the French Shore of the west coast. Some of these vessels made a specialty of transporting these men as passengers which justified stopping twice at Saint-Pierre. On the contrary, this traffic presented no interest to the bank vessels at a time when the limited yield of the handline fishery permitted them to store in the hold all the fish caught before returning to France. Stopping at Saint-Pierre was a detour resulting in a considerable loss of time. It was justified only by grave damage to the vessel or the necessity of renewing supplies.

The French revolutionary period did not pass without incidents. In 1792 there were many riots. In the course of one of these a woman was accidentally killed. She was the only victim, the local Committee of Public Safety having pronounced no other condemnation than the expulsion of some nobility. In 1783, a number of families of Acadian origin voluntarily emigrated to the Madeleine Islands under the leadership of their priest, Abbe Allaire, who had refused to preach the constitutional sermon. The descendents of these families form one of the principal elements of the population of this little archipelago in the Saint Lawrence.

A few days after their departure, May 5, 1793, the long-boats came from the French Shore carrying the first news of the opening of hostilities between France and England. May 14 an English flotilla commanded by Vice-Admiral King, appeared before Saint-Pierre. Two vessels of the line, two frigates, troupes commanded by a Brigadier General on four transports from Halifax, were opposed to the small garrison of men guarding the colony.

All resistance being futile, Saint-Pierre was occupied without a gun being fired. The colonists, numbering 1502, were transported to Halifax and from there to France. Among these, some old Acadians underwent, since the great exile of 1755, their fourth deportation.

The English abstained from destroying the town of Saint-Pierre as they had done in 1778. Newfoundland fishermen came to take over the property of the dispossessed. In this circumstance, it was a French flotilla which, after having ruined many English fishing settlements on the Avalon peninsula, came in 1796, to destroy the ancient French establishments at Saint-Pierre which had passed to the hands of the enemy.

The peace of Amiens, signed March 27, 1802, restored to France the islands of Saint-Pierre and Miquelon. Bonaparte, first consul, officially took repossession August 20 of the same year; but renewal of hostilities led to a new abandonment in March, 1803, before any effective re-establishment had been accomplished.

The Treaty of Paris, May 30, 1814, confirmed the following year by the Treaty of Vienna, returned the old colony to France, at the same time restoring the rights on the French Shore.

Effective reoccupation of the islands took place June 22, 1816. Two transports, the Caravane and the Salamandre, brought 150 families who, with the exception of a small contingent of French emigrants, had formerly been established on the islands a total of 645 people. A police force for the colony also came.

With the aid of the government, the colonists rebuilt the town of Saint-Pierre and the village of Miquelon. Times were difficult at first, and the government had to furnish, for the first three years, an important part of the subsistence of the colony.

In 1817, however, the local fishery was vigorously undertaken. Many boats which had been rebuilt, some of them 60 years old, were launched. In the year 1817, 24 long-boats and barks, and 271 wherries were outfitted for the coastal fishery. 615 men were employed aboard them, of whom 514 were brought for the season from France by 38 vessels coming for the great fishery. One of the vessels, the Saint-Louis, transported 85 passengers both ways.

The year 1818 saw the outfitting of the first two Saint-Pierre two-masted vessels, of which one, the Espoir, had been constructed at Saint-Pierre the same year.

In 1819, two of the two-masters, including the Espoir, and six long-boats, outfitted for the Gulf fishery. Their fishing permits mentioned "From Cape Saint-Jean, passing to the north, as far as Cape Raye, but conforming to the regulation of February 13, 1815."

In the course of the 19th century, the colonial outfitting acquired a real importance, by reason of the increasing number of two-masted vessels put into service.

These two-masters were excellent small vessels varying from 40 to 60 tons, the equivalent of 1000 metric hundredweight of cod. The crew was 20 men for the bank fishery and almost double for the shore fishery in the Gulf, which included the shore men for drying the cod. Most of these vessels were built at Saint-Pierre, where the shipyards were very active between 1855 and 1880.

This outfitting at first was for the Gulf fishery. The regulation of 1821 reserved to them exclusive right to a certain number of fishing places on the French Shore; all of the harbor of Saint-George, four places on Isle Rouge, and four at Cod Roy. In these fishing places, policing of the fishery was done by a "patron", elected by the vessels, who received a compensation for this extra duty. Fishing was done by the long-boats, by hand line or line trawl.

Some vessels went to the French Shore fishing only and not drying the cod. They did not land shore workers and had no use for shore installations. When they had a trip of salted cod, they returned to Saint-Pierre, where their outfitters undertook the drying operations on the beaches.

Other two-masters practiced drying on the French Shore in the same way as the vessels coming from the metropolitan ports. During the season they made many trips to Saint-Pierre to bring in the dried cod, the shore men continuing the drying operations. On the other hand, many Saint-Pierre fishermen were accustomed to fishing and drying cod at the places on the French Shore especially reserved for this fishing colony. They were transported from Saint-Pierre, with their wherries, by the two-masters.

Little by little, the bank fishery expanded among the colonial outfitters, beside the Gulf fishery. It required the ^{vessels} ~~outfitter~~ to land at Saint-Pierre for drying the cod.

The two-masted vessels fished on the bank neighboring Saint-Pierre where they captured small cod especially appreciated in the West Indies, on Banquereau, on Green Bank, and as far as the Grand Banks. They practiced the line trawl fishery but it was only with adoption of dories in 1875 that this fishery developed importance, for the lowering and raising of the great long-boats to the vessel for setting and hauling the lines was a difficult and dangerous operation for the little vessels.

From this time it was the same for the colonial as well as the metropolitan vessels. The bank fishery used more and more two-masters while outfitting for the Gulf fishery constantly waned.

In the last years of the 19th century, the port of Saint-Pierre outfitted about 200 two-masters, almost all for the bank fishery. Each of them used from 6 to 8 dories. Because of this small capacity, these vessels made three or four trips from Saint-Pierre bank to unload their catches, renewing their bait, herring, capelin, or squid, according to the season.

The average catch for a two-masted vessel for a season was 1800 to 2000 metric hundredweight. Drying of cod was done in all the colony.

Outfitting the vessels and preparing the cod landed at Saint-Pierre required the annual importing for the fishing season of about 2000 sailors and shore workers from France. While the metropolitan vessels had to land at Saint-Pierre to provision with bait and unload cod, the custom of transporting these seasonal passengers continued.

But the situation changed aspect with the Bait-Bill, with the use of Buccinus for bait, and the increase in tonnage which was one of the consequences, so that little by little the three-masted vessels abstained from all landings at Saint-Pierre. It was necessary to find another solution. This was accomplished by packet-boats especially built for the purpose which carried 1000 to 1500 men a trip. These massive embarkations aroused, in the little town of Saint-Pierre, for some days, extraordinary excitement. It was not, unhappily, without being accompanied by regrettable and dangerous excesses, mostly in an astonishing consumption of alcohol.

The rapid increase in the fleet of two-masted vessels did not hinder the development of outfittings for the small coastal fishery, with eventual extension to the Gulf fishery. About the same time, the latter equipped about 400 wherries and dories and some 20 larger boats called pirogues. The long-boats and barks had disappeared. The coastal fishery was and still is practiced by the men of Saint-Pierre, the Isle de Marins, and Miquelon. The handline is used. Jigging is forbidden. The baits used are the ordinary seasonally-available baits, herring taken in small quantities about the islands, capelin and squid; also the sand lance taken at Miquelon. But the preferred bait for this fishery is the mussel, which abounds in the Great Pond of Miquelon and the coves of Langlade, and which may be used during the whole fishing season. This bait, of which the cod is very fond, cannot be used for the line trawl fishery for it is too soft.

These small fishermen prepare and dry the cod themselves. Each of them has a strip of beach. In the course of the 19th century, these numerous fishing places each were provided with capstans for hauling the boats up on the shore.

During the epoch of great outfitting of the two-masted vessels, they prepared at the colony, besides flat salted and dried cod, a small quantity of round cod, using the best fish. The port of Nantes received almost all of this product, the demand for which was then very limited.

During the course of the fishing season, the sailing transports came to Saint-Pierre to get the dried cod. A large part was transported to the West Indies, a market the colony had had for a long time, for the West Indies trade had the advantage of receiving the product directly, avoiding a roundabout route to the French ports, thus receiving a perfect product prepared for use in the warmest climate, the small size of the fish suiting their tastes. The rest of the production was almost entirely exported to Bordeaux.

In the last quarter of the 19th century, about 1875, the year when the bank vessels adopted the use of dories, and 1886 which saw the Bait-Bill become effective, the port of Saint-Pierre was at the height of its activity, regularly frequented by 200 to 250 sailing vessels of the great fishery from the metropolitan ports and 200 two-masters outfitting there. The movement of vessels was unceasing, with the concentrations at the beginning and end of the season, and the renewal of bait between the first and the second fishery. A veritable forest of masts raised itself in the harbor and in the coves. Besides the fishing vessels, there were many sailing transports, coming and going, which carried supplies of salt and loaded exports of fish for France and the West Indies. Activity was lively in the town, which swallowed the floating population of fishermen and shore workers. Commerce was prosperous and the inhabitants as well as the finances of the colony drew great benefit.

The population of the islands had singularly increased since the Caravane and the Salamandre had landed 645 immigrants in 1816 who formed the nucleus of new colonization. There were 2,100 people in 1848, 4,916 in 1880, and 5,929 in 1887. The maximum population was 6,482 permanent residents in 1902.

The town of Saint-Pierre, commercial by definition, consisting of three-fourths of the population of the islands, was constructed with houses almost entirely of wood, each pushing up from the barren soil, as the terrain allowed, some scattered here and there, in an utilitarian culture but with ornate decorations lovingly maintained.

Of modest exterior, most of the houses were, nevertheless, arranged for real comfort. In many of them one found central heating and a bathroom with running cold and hot water. All were carefully built to endure comfortably the cold winter period.

To this town of wood, the danger of fire was a constant threat. Three times since 1865, Saint-Pierre has been partially destroyed by fire. The streets are laid out widely for defence against this terrible scourge.

Besides the shipyards, which were in full activity at the end of the 19th century, Saint-Pierre had at this period a dory manufacturer, an oil skin garments maker, and a sea-biscuit factory. Its numerous houses of business, stocked with French and American goods, catered to all the needs of the vessels, as well as the inhabitants of the colony and its temporary guests.

The inhabitants of Miquelon, a village of 500 people, live almost entirely on the product of their small fishery. Besides the cod fishery, they practice, in season, the sand lance and capelin fisheries.

Besides the use of capelin for bait, some is salted and smoked for sale as food at Saint-Pierre and for export. The lobster fishery is also an important resource at Miquelon. Grande Miquelon and Langlade present a modest culture which seems susceptible to great development. A dozen farms maintain small herds of cows and flocks of sheep.

The climate is harsh at Saint-Pierre and Miquelon. The winter is long and severe. Snow covers the ground from the end of December to April and on certain days of blizzard, it is impossible to venture outdoors. But the cold periods are often compensated for by beautiful sunny days.

Summer, as on the banks, is a season of fog. The months of June and July, the warmest, are also the foggiest. At this time, the fogs last weeks at a time, during which one sees the sky only at rare intervals. August and

September, less foggy, are the only good months of the year. From the end of October, the fogs are replaced by the cold of winter.

Activity at the port of Saint-Pierre was sensibly reduced with the Bait-Bill and the progressive disappearance of landings of vessels from the metropolitan ports, which was a consequence. The colonial outfitting, however, with its 200 two-masted vessels, the transport of seasonal workers, and the movements of exports continued as important business in the colony.

At this time, it was the colonial fishery which supplied, from May to October, the important market of Bordeaux, to which the products of the metropolitan fleet did not arrive until the last of October, sometimes later. This prime cod, arriving already dried, was sold at a particularly remunerative profit. In the last years of the 19th century, the Saint-Pierre outfitting also exploited with success the lobster fishery on the French Shore. This was of great return until the abolition of the French Shore in 1904.

The situation changed, after 1903, when the outfitting of two-masters regularly and rapidly decreased. While the number of these vessels outfitted at Saint-Pierre was 208 in 1902, it was only 183 in 1903; then it fell to 151 in 1904 and 101 in 1905.

Many factors contributed to this decline. The season of 1903, very unproductive, saw 23 two masted vessels lost. This continued in 1904 with the loss of 24 vessels. In 1905 the number of shipwrecks dropped to 5, but in 1906 there were 17. In these conditions, aggravated by the poor yield of the fishery over several consecutive years, many of the Saint-Pierre outfitters, with limited capital, could not replace these vessels, or preferred not to risk another season.

To these causes of decadence was added the poor recruitment of crews from France, composed, usually, of the left-overs from the outfitters at Saint-Malo, Fecamp, and other ports. Besides, the manner of exploitation by the Saint-Pierre vessels, with the necessity of landing the fish at their port and renewing provisions, showed a very inferior yield to that obtained by the metropolitan three-masted vessels in the course of a season effected without any breaks.

Thus, in the following years, the inexorable decline continued. The number of two-masters outfitted in 1912 was only 40. It fell to 33 in 1913 and 24 in 1914.

The war came then to deliver the coup de grace to this outfitting formerly so flourishing. The personnel was completely lacking, only one two master sailing from 1915 to 1918. In 1919, there were two. The fishery being mediocre, these were the last. Since then the old two-masted vessels have terminated their careers, piece by piece, in the chimney corners of the Saint-Pierre houses. A few recalcitrant hulks survive in some of the coves.

This crisis in local outfitting, the principal industry of the colony, immediately resulted in an exodus of part of the population. From 6,482 in 1902, the count fell to 4,768 in 1907. At the census of 1927, the population had stabilized at about 4000 inhabitants.

At the end of the first world war, the number of steam trawlers sent from France for the bank fishery resulted in new activity at Saint-Pierre, for lacking sufficient capacity for storing all their season's catch until the return to France, these vessels came to port many times during the season to unload their catch of green-salted cod to this transit center where the cargo was prepared for export. But this reactivation was ephemeral, for later the trawlers, increased considerably in tonnage and at the same time increasing their range of action, were able to abstain from landing at Saint-Pierre.

Circumstances came about, during this period, so that the colony found a new and unusual source of activity surpassing its vital industry, the fishery. The era of American prohibition opened and Saint-Pierre became a vast depot for alcohol, a strategic center in this situation of the great contraband trade of liquids forbidden in dry America.

The most ingenious means were employed in this traffic. Superb speedboats capable of making more than 30 knots, specially constructed in American shipyards, were used to run the blockade of the prohibition coast guard. The finances of the colony legitimately prospered with the success of these blockade runners, thanks to the customs tax they paid on the sale of the liquors.

The abolition of prohibition sounded the end of this prosperity. The blow was the harder because at this time Saint-Pierre had lost all traffic in the products of the metropolitan fishery, with the advantages which resulted in all branches of local business. Important works of improvement of the port facilities, which had been undertaken at the time of great prosperity were, nevertheless, continued, with the aid of the government, with the happy result of giving the colony the installations it would eventually need for future activities in better times.

The local fishery had always subsisted after the extinction of the two-masted vessels, with a modernized drying of its products. It employed about 200 wherries and some dories. But, if the wherries are half as numerous as formerly, their total yield is found considerably augmented by the fact that they are, actually, all supplied with motors of American manufacture, of from 3 to 5 horsepower. The use of a motor gains precious time for these boats in getting to the fishing places, sometimes 10 to 12 miles from the point of departure. It permits them to make many more trips.

In the absence of handling the metropolitan catch, the products of the coastal fishery have permitted the colony to maintain a modest movement of exports to France and to the West Indies.

The last years preceding the second world war marked an attempt to restore the colonial fishery. From 1937 to 1939, the port of Saint-Pierre outfitted a trawler of 488 tons which landed its catch many times in the course of the season. In 1939, it also outfitted two two-masted vessels with motors which practiced the line trawl fishery as carried out by the Canadian and American fishermen.

One cannot actually predict the future of the islands of Saint-Pierre and Miquelon. However, it is not forbidden to suppose that this old colony, which depends always on the fishery, can, with some new evolution in technique and economy in the conditions of exploitation of this industry, regain at a period more or less distant, its position as a great center of preparation and distribution of the products of the enormous reserve of fish on the banks of Newfoundland.

